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2 The rediscovery of native 'super-foods' in Mexico

Esther Katz and Elena Lazos

Introduction

In Latin America, Mexico is the country where the food has retained more Amerindian traditions than in others. At the beginning of the 16th century, just after the conquest, the Spaniards discovered, in Mexico, edible plants and animals unknown to them. They immediately adopted some local foodstuffs, while disregarding others.

In this chapter, we will examine the fate of three traditional foodstuffs and beverages specific to the indigenous cultures of Mexico which were rejected, despised or prohibited by the colonisers or, later, by the upper classes, but are presently eliciting enthusiasm as healthy or gourmet foods: a pseudo-cereal, amaranth (*Amaranthus* spp., *Chenopodium* spp.), edible insects and a fermented drink, *pulque*, drawn from the sap of the century plant (*Agave* spp.). Due to the quality of their nutrients, these three products may be considered as 'super-foods', and definitely be classified as 'traditional foods', since they have been consumed by the autochthonous people of Mexico for centuries. We will analyse reasons why these foods were rejected at some point, while the consumption of other traditional foods, such as maize and beans, was never questioned. We will show that such dynamics varied according to periods and places: at the beginning of the 16th century, the Spanish clergy prohibited 'pagan' offerings, often made of amaranth, and probably disdained its consumption; most Spaniards rejected insects, although they adopted *pulque* the elites started to despise it, only at the end of the 19th century. Why and how a change in the appreciation of these foods and drinks has occurred over time and why they are valued today, also constitute questions we aim at developing in this account.

We will base our analysis on bibliographical data, as well as on fieldwork conducted over the last 30 years with Amerindian and *mestizo* populations residing in rural areas: by Esther Katz, in the State of Oaxaca (mainly the Mixtec highlands) and by Elena Lazos, in the States of Yucatán, Veracruz, Jalisco, Tlaxcala and Oaxaca.[1] We will add to this material, diffuse observations made in different parts of the country. In order to understand the context of the traditional indigenous foods, we will present first the historical context of the constitution of Mexican cuisine, starting with the meeting of the indigenous and

Spanish cultures, as the fusion of Amerindian and Spanish culinary traditions is a salient feature of Mexican cuisine.

The historical context of Mexican food

After the discovery of the West Indies by Christopher Columbus in 1492, the Spaniards landed, in 1519, on the Atlantic coast of Mexico, and explored the vast territory of the Aztec empire, densely populated and composed of different ethnic groups who had many cultural features in common. In particular, they were sedentary cultivators, while their neighbours in Northern Mexico were mainly hunter-gatherers.[2] In 1521, the Spaniards conquered the Aztec empire, which they renamed 'New Spain'. They eliminated the Aztec elites, but maintained the Aztec organisation of the empire, including the tribute system.[3] In spite of the epidemics that destroyed a high percentage of the population (Cook and Borah 1979), the indigenous people remained more numerous than the Spaniards who, at the beginning of the colonisation, were mainly men, either friars or soldiers. The ecclesiastics evangelised the indigenous population and struggled against pagan beliefs and practices. However, agrarian rites were so crucial that they kept being performed in the form of Catholic saints festivals (Lammel et al. 2008). The friars played a major role in the diffusion, in Mexico, of plants such as wheat and barley, fruit trees and herbs and animals such as cows, sheep, goats, pigs and hens, that the conquerors judged essential to their subsistence and introduced from Spain (Berthe 1988). At the end of the 16th century, the Spaniards imported tropical plants from their other territorial possessions, especially Peru and the Philippines (Patiño 1969). The introduction of all these new crops and animals modified the ecosystems but the indigenous people kept cultivating the *milpa*, a crop association of maize (*Zea mays*), beans (*Phaseolus* spp.) and squash (*Cucurbita* spp.) (Wolf 1959). Maize, beans and chilli pepper (*Capsicum annuum*) constituted their staple food and numerous cultivated and wild plants as well as mushrooms complemented the diet. Regarding animal products, game and domesticated dog and turkey played a minor role in the diet, but insects were consumed regularly (Casillas and Vargas 1984; Sugiura and González de la Vara 1996). Through the 'Columbian exchange', the indigenous people adopted foodstuffs from the Old World, but without changing their diet pattern, while the Spaniards adopted some from the New World and contributed to their diffusion all over the planet. In the eyes of the Spanish conquerors, maize was similar to wheat, *tortilla* (maize flat cakes) to bread, American beans (*Phaseolus* spp.) to fava beans (*Vicia faba*) and chilli pepper (*Capsicum annuum*) to black pepper (*Piper nigrum*). The first colonisers adopted local foods because indigenous women, keepers of the culinary traditions, cooked for them. Nevertheless, the Spaniards did not adopt all the indigenous food habits.

At the end of the 16th century, the hybridisation of the Mexican culinary system accelerated with the foundation of convents. Spanish nuns invented new dishes combining local and introduced ingredients and cooking techniques, mixing Arab-Andalusian and Aztec cuisines.[4] They participated in the elaboration of

a refined cuisine at the New Spain vice-royal court, probably inspired by the culinary traditions of the Aztec court (Long 1996, 1997). The Spanish language integrated new terms from the language of the Aztecs, Nahuatl, for previously unknown plants, animals, dishes and cooking utensils.[5]

Despite intermarriages between Spaniards and indigenous people during the colonial period, the latter still constituted more than half of the total population at the beginning of the 19th century (Navarrete 2004). Their pre-eminent presence as well as the role of indigenous women as cooks and the existence of a refined court cuisine, contributed to the preservation of many more Amerindian cooking traditions in Mexico than in other Latin American countries.

After the Independence of the country in 1821, the *mestizo* population grew tremendously due to two main reasons: increase of mixed marriage compared to the colonial period, and the official designation of the *mestizo* category to people who did not speak an indigenous language; this included people of Spanish descent as well as the numerous Indians who no longer spoke their native language (Pitt-Rivers 1992). The invention of a national cuisine was a political project for the new nation. Rejecting Spain, the elites first took France and its cuisine as a model, but progressively integrated into the national cuisine, all through the 19th century, the culinary traditions of central Mexico, the region of the capital city (Bak-Geller 2008). The Mexican Revolution of 1910 enhanced the glorification of the indigenous roots of the country. Many traditional dishes served today are considered as belonging to the indigenous heritage, even though the recipes include foodstuffs introduced by the colonists.

Nowadays, speakers of native languages, mainly located in the centre and the South of the country, constitute only 6.5% of the total population (INEGI 2010), but a much higher number of people, difficult to evaluate, are actually Indians who have lost their native tongue, but often keep indigenous culinary traditions. Moreover most Mexican people have, to some degree, indigenous roots, thus many elements of the indigenous food culture have been transmitted to the whole society and integrated into the national cuisine. Nevertheless, many Mexican people give credit to the Indians of the past, but do not want to be assimilated to present-day Indians who are often poor and live in so-called 'marginal' mountain areas. In the second half of the 20th century, many of them were attracted by the modernity model of their giant neighbour, the United States, and rejected aspects of Mexican culture perceived as backward. In 1992, at the 500th anniversary of the discovery of America, Mexican people wondered whether it was legitimate to celebrate an event that had led to genocide and cultural loss, and became more conscious of their indigenous roots. In 1994, the Zapatist rebellion in Chiapas raised more questions on the present situation of the Amerindians, their struggle for land and for their subsistence. In 2000, facing maize pollution by transgenic seeds, many indigenous and peasant organizations as well as NGOs centred their socio-political demands on food sovereignty and the right to cultivate traditional food. They demanded that the right to food be included as a human right in the Mexican constitution. In the meantime, the Conservatory of Mexican Gastronomy submitted to

UNESCO an application for inscribing Mexican cuisine as an intangible heritage, enhancing the role that indigenous people played in preserving over centuries a diversity of foods and dishes. This declaration was effective in 2010, generating tremendous enthusiasm among chefs, entrepreneurs, government institutions and communities, eager to promote both Mexican gastronomical traditions and innovations. Mexican chefs, trained in haute cuisine, are now integrating regional ingredients and recipes, and creating new dishes inspired by these traditions.

In the context of these socio-political and cultural movements, we will now examine three contrasting examples of traditional indigenous foods, previously rejected, despised or forgotten, that have recently been rediscovered by the elites and part of the mainstream population.

Amaranth: from 'lost crop of the Aztecs' to health food

In the 16th century, the Spanish chroniclers described under the name of *bledo* a plant with edible grains and leaves that the Aztecs called *huauhtli*. It was identified as belonging to the botanical genus *Amaranthus* only at the beginning of the 20th century and therefore called amaranth, in Spanish *amaranto*. Scientists, such as the botanist and geographer Jonathan Sauer (1950), found out later that the term *huauhtli* actually covered two botanical genera, *Amaranthus* spp. (with either black or white seeds) and *Chenopodium* spp. (with red seeds).[6] The Argentinian scientist Armando Hunziker (1952) defined amaranth as a 'pseudocereal', a

Figure 2.1 Amaranth

grain similar to cereals, but not belonging to the same botanical family (the *Poaceae*, also called *Gramineae*). Recently, in the framework of a project of the National Commission of Biodiversity (CONABIO), the botanists Cristina Mapes and Eduardo Espitia (2010) achieved a complete revision of these species in terms of taxonomy, domestication, cultivation, geographical distribution and uses: *Amaranthus cruentus* and *A. hypocondriacus* are the main grain *Amaranthus* species cultivated – and domesticated – in Mexico; some non-cultivated species of amaranth are only used for their leaves, such as *A. hybridus*, known as *quintonil* (from Nahuatl *quiltonilli*) and usually gathered as a weed from the maize fields ; the main grain *Chenopodium* considered as an amaranth is *Chenopodium berlandieri* var. *nuttalliae*; its young inflorescences, called *huauhzontli,* are commonly eaten in the Central Highlands (*Altiplano Central*).[7]

In central Mexico, at the beginning of the 16th century, *huauhtli* was a staple and a ritual food, as important as maize. It was not only cultivated in the Basin of Mexico, location of the Aztec cities, but also brought as tribute to the Aztec rulers from other parts of the Central Highlands (present-day States of Mexico, Morelos, Hidalgo) (see Figure 2.2). The tribute of amaranth reached almost the same quantity as that of maize (Sauer 1950). The Spanish friar Bernardino de Sahagún (1999 [1570–1582]), who had lived in central Mexico for several decades, and mastered the Nahua language, provides us with a detailed description of the different types of *huauhtli* consumed by the Indians as well as the dishes prepared with the grains (*huauhtli*) and with the leaves (*huauhquilitl*). The Aztecs consumed *huauhtli* in the same way as maize, in *tortillas*, in *tamales* (steamed dough wrapped in leaves) or in *atole* (gruel). Amaranth leaves were mixed with maize in *tortillas* and *tamales,* or used to prepare *moles* (thick chilli sauce). Sahagún, quoted by Sauer (*ibid*.: 567–570), described how, during their rituals, the Aztecs shaped images of their gods into a dough called *tzoalli*, made of amaranth seeds, toasted maize and agave honey, that they consumed at the culmination of the ceremony. The Spanish clergy, fighting against 'idolatry', prohibited such offerings. There is no evidence that the Spaniards banned the everyday consumption of *huauhtli*, but the prohibition of the offerings may have contributed to the decline of its cultivation. Moreover, the demographic decline due to epidemics resulted in abandonment of land and loss of knowledge, and the introduction of wheat and barley possibly led to a displacement of amaranth (Martínez-Alfaro *et al.,* 1994). What is most significant is that amaranth could have been adopted as a grain crop, the same way as maize. Although maize was often mixed with amaranth to make *tzoalli*, it kept on being cultivated and consumed as a staple food. Was it more difficult for the Spaniards to deal with a very small seed that needed to be popped in order to be consumed? The historical accounts have not yet given even a tentative answer to this question.

Several decades after the conquest, according to the *Relaciones Geográficas*, a survey conducted by the government of New Spain in 1577–1580, amaranth was still a staple in central Mexico and other regions of the country. It was cultivated mainly in the Central Highlands and in smaller quantities from Veracruz in the east to Jalisco in the west (see Figure 2.2). At the beginning of the 17th century,

a priest reported that the Indians in his parish in the present State of Guerrero still made offerings of *huauhtli,* but from then on, amaranth cultivation declined, without, however, totally disappearing (Sauer 1950: 571–575).

Amaranth is very rarely mentioned in documents of the late colonial period, but Sauer (*ibid.*) notes that the word *alegría* defining a sweet made of popped amaranth seeds was in use in 1698. This candy was the main form in which amaranth was consumed. Then the plant itself began to be called *alegría* too. In an agronomy journal, an article published in the 1880s indicated 'the cultivation of *alegría*' in the State of Mexico, and its sale as manufactured candies in the nearby market of Texcoco, located just north of Mexico City (*ibid*.). Nevertheless, amaranth had disappeared from the official statistics: not a single village indicated its cultivation in the agricultural survey conducted in the 1890s by the Mexican government (República Mexicana, Secretaría de Fomento, 1893–1895, quoted by Sauer, *ibid*.).

At the beginning of the 20th century, scientific curiosity was raised again about *huauhtli*, the lost crop of the Aztecs that allowed its botanical identification (as mentioned above). In the 1940s, Sauer dedicated extensive research to this plant and found out that it had not disappeared. He pointed out that 'although reduced to an inconspicuous relic of the once great staple, the crop has been conserved by a surprisingly large number of Mexican communities', and 'sizeable fields of amaranths are planted by only a few *pueblos* today; generally a few plants are sown near the houses or scattered through the maize fields; often only a small minority of the families still grow them.' (*ibid*.: 578). He showed that amaranth was still cultivated, and also was commercialised as *alegría* candy, in the Central Highlands (the Federal District and the States of Mexico and Morelos –the Aztec cradle –, as well as the States of Puebla and Tlaxcala) and the Valley of Oaxaca, but only a few communities of the Central Highlands consumed the grains in a traditional way, i.e. in the form of *atole* and *tamales*. Communities in the State of Michoacán still consumed it in that way, but there cultivation showed a decline. In the remote area of the Montaña de Guerrero (Guerrero Mountain), the anthropologist Hendrichs (1945, quoted by Sauer 1950: 579) observed that the custom of sowing a little amaranth in the maize fields had persisted throughout these mountains, where it was consumed as *atole.*[8] Sauer found very scarce evidence of amaranth cultivation in Guatemala, but his colleagues observed it in Jalisco (in the West), Sonora, Chihuahua and Sinaloa (in the north).

In the 1950s, Hunziker (1952:78), studying the Andean amaranth, emphasized that amaranth grain was superior to cereals in protein and fat content. However, the nutritional content of amaranth began really to attract research attention in the 1970s. In 1972, an Australian scientist showed that amaranth seeds contain a high level of lysine, an amino acid usually low in cereals. Soon afterwards, in 1976, the Rodale Research Center in Pennsylvania started a major research project on amaranth: its scientists collected samples from different parts of the world and developed breeding and agronomic research in order to adapt amaranth cultivation to modern agricultural techniques (NRC 1984). In the

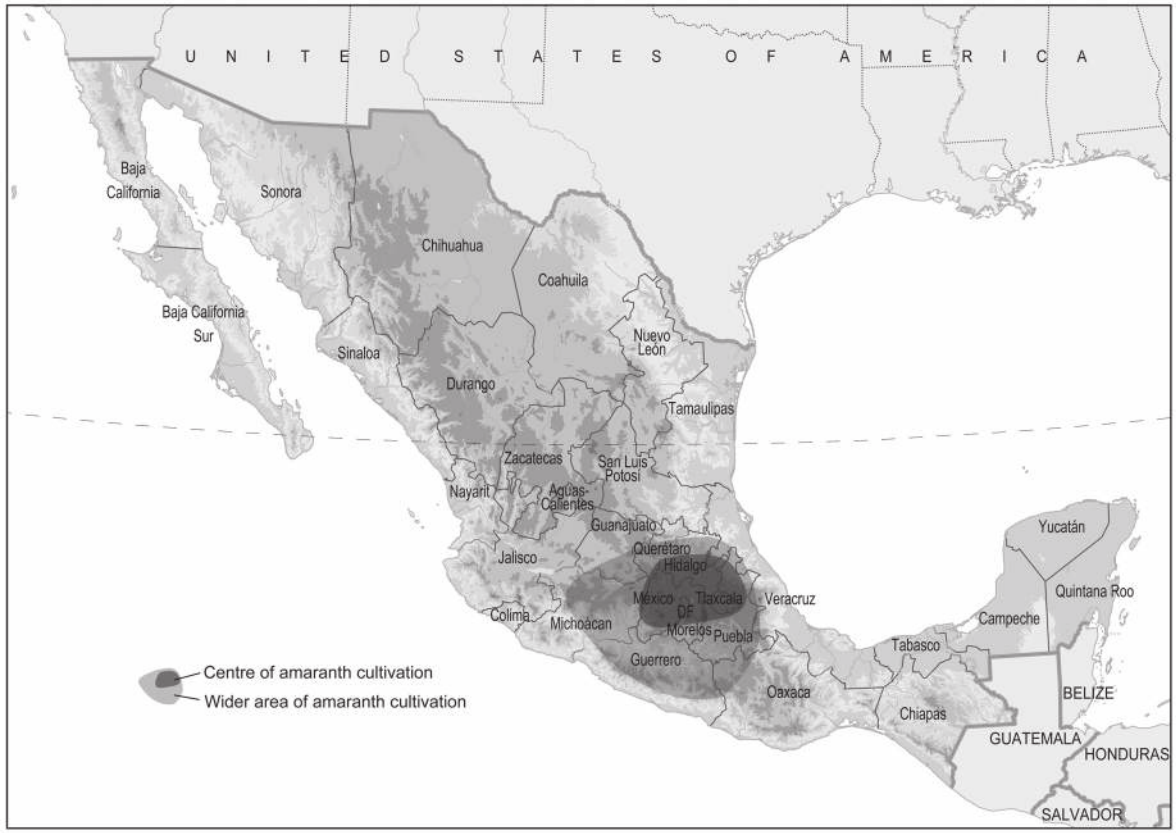

Figure 2.2 Main areas of amaranth production in Mexico

meantime, scientists of the National Research Council of the United States, worried by the risks of starvation as the world food resources rely mainly on about 20 crops, conducted research to diversify the food base and to attract attention to plants considered as 'non-conventional' (NRC 1975). Considering its high potentialities, they dedicated a monograph to amaranth and suggested its incorporation into breakfast cereals or confectionary (NRC 1984).

In the 1970s, the production of amaranth in Mexico was still very low. However, its potential for health favoured its revival. An annual fair devoted to *alegría* (and olives) was created in 1971 in Tulyehualco, Federal District, a semi-rural area adjacent to Mexico City, located in the cradle of amaranth cultivation and, supposedly, of *alegría* candies.[9] In 1983, the cultivation of amaranth for commercial use was estimated to cover 300 hectares. In 1985, this had already increased to 1500 hectares, mostly in the state of Morelos (Mapes and Espitia 2010: 52–55). Since then, it has been increasing (Figure 2.3) and amaranth now reaches a very good price on the market. The commercial production of amaranth is now concentrated in four States in the Central Highlands: Morelos, Tlaxcala, Puebla and the Federal District. There is also some commercial production in the States of Mexico, Guerrero, Oaxaca and Durango; recently, it started also in Chihuahua (Figure 2.2) (Mapes and Espitia, 2010: 55, 141–146).

Since the 1990s, further investigations have been carried out on finer aspects of the nutritional content of the different species of amaranth: the quality of protein, lipids and starch, anti-oxidant properties, dietary fibre, vitamins, minerals and other micro-components (squalene, tocopherol, phenolic compounds, etc.) (Venskutonis and Kraujalis 2013).[10] The balanced amino acid composition of

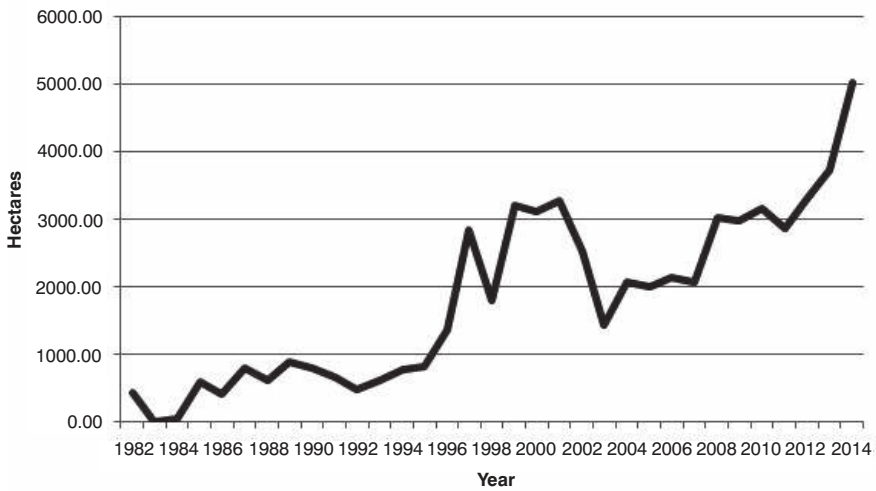

Figure 2.3 Cultivated area of amaranth (1982–2014)

Source: SIAP-SAGARPA, 2015, Estadísticas Agropecuarias Nacionales http://www.siap.sagarpa.gob.mx (retrieved on 09 November 2015)

amaranth is estimated to be close to the optimum protein reference pattern in the human diet, the combination of amaranth and maize flour (50:50) almost reaches the perfect score of 100 on the nutritionist's scale, and the combination of amaranth and wheat flour increases the nutritional value of baked products. It is now used for protein enrichment of food products. Moreover, amaranth grains have higher lipid content than most cereal grains and contain large amounts of squalene (a lipid used in cosmetics). It is also gluten-free and is therefore suitable for the diets of coeliac disease patients (Grobelnik-Mlakar et al. 2009).

Since the beginning of the 21st century, Mexican people from all social classes have become aware of the need for healthier food habits. The statistics showing a relationship between bad nutrition and diabetes, which has tremendously increased in the country, as well as the incidence of overweight and obesity (Gutiérrez et al. 2012), have been widely commented on. Amaranth has attracted part of the population by its nutritional qualities.

In Mexico, amaranth is still commonly consumed as *alegría* candy. For the last decade, it has also been included in mixed breakfast cereals, sold as plain popped seeds in local markets, health food shops and some supermarkets, and new types of amaranth candies have been created. It is consumed mainly by health-conscious people of the urban intellectual middle class. For instance, the supermarket in the National Autonomous University of Mexico (UNAM), where students and professors shop, displays a much wider variety of packs of popped amaranth seeds than other supermarkets. In small tourist towns of the State of Morelos, where people from the intellectual middle class of Mexico City spend weekends, women from villages of Western Morelos sell packs of popped seeds of amaranth from their family production. The 45th *Alegría* and Olive Fair in Tulyehualco was held in February 2016. As observed by anthropologist Charles-Edouard de Suremain (personal communication), the fair is mainly attended by local people, but some people from Mexico City go there too. Many stands display the prehispanic origin of the product. All kinds of amaranth products are exhibited, including new types of candies such as chocolate amaranth bars. Such products were also exhibited at the 3rd World Forum of Mexican Gastronomy. It looks like a growing sector, where creativity is enhanced. Amaranth is now sold in health food shops, not only in Mexico but in the United States, where it was first promoted, and in many other countries. As a health food, amaranth is finally conquering the world.

Insects: food for 'savage people' or a delicacy?

In the 16th century, at the beginning of the colonial period, the consumption of insects by indigenous population was described by Spanish friars or naturalists. The friar Bernardino de Sahagún (1999), in particular, delivered a precise account of some insect species eaten by Indians: grasshoppers/crickets, ants and their larvae, caterpillars from agave and maize, and aquatic bugs and their eggs. Unlike the friar who lived close to the Indians and found these insects 'good to eat', most of the Spanish colonists probably rejected this food. However, the

Figure 2.4 Insects

friar's example shows that some people are ready to taste and appreciate foods not considered as edible in their own culture.

Today, the Mexican population is divided between consumers and non-consumers of insect; many non-consumers consider the insect eaters as uncivilised people: Indians eat them and descendants of Spaniards do not. However, in a country where European and indigenous populations were mixed, the division between eaters and non-eaters is blurred. As mentioned above, people classified as *mestizos* because they no longer speak an indigenous language often keep many indigenous cultural features and food habits, including the consumption of insects, and Mexico has the most Amerindian cuisine in Latin American. For the same reasons (a high proportion of population of Amerindian descent and a national cuisine integrating indigenous ingredients and dishes), it is also the Latin American country where insects are eaten the most (Katz 2016).

The Mexican entomologist Julieta Ramos-Elorduy, who has been conducting major research on edible insects since the late 1970s, has shown that a wide range of insects species, much larger than the list provided in the 16th century, is consumed in Mexico nowadays: in 2012, she had recorded 547 species of edible insects from all over the country, but had collected more species in the central and southern part of Mexico (Figure 2.5), where there is a higher indigenous population (Ramos-Elorduy 1982, 1997; Ramos-Elorduy et al. 2012). [11] Since the beginning of her studies, she has been promoting a wider consumption of insects and even published an insect recipe book for a general audience.

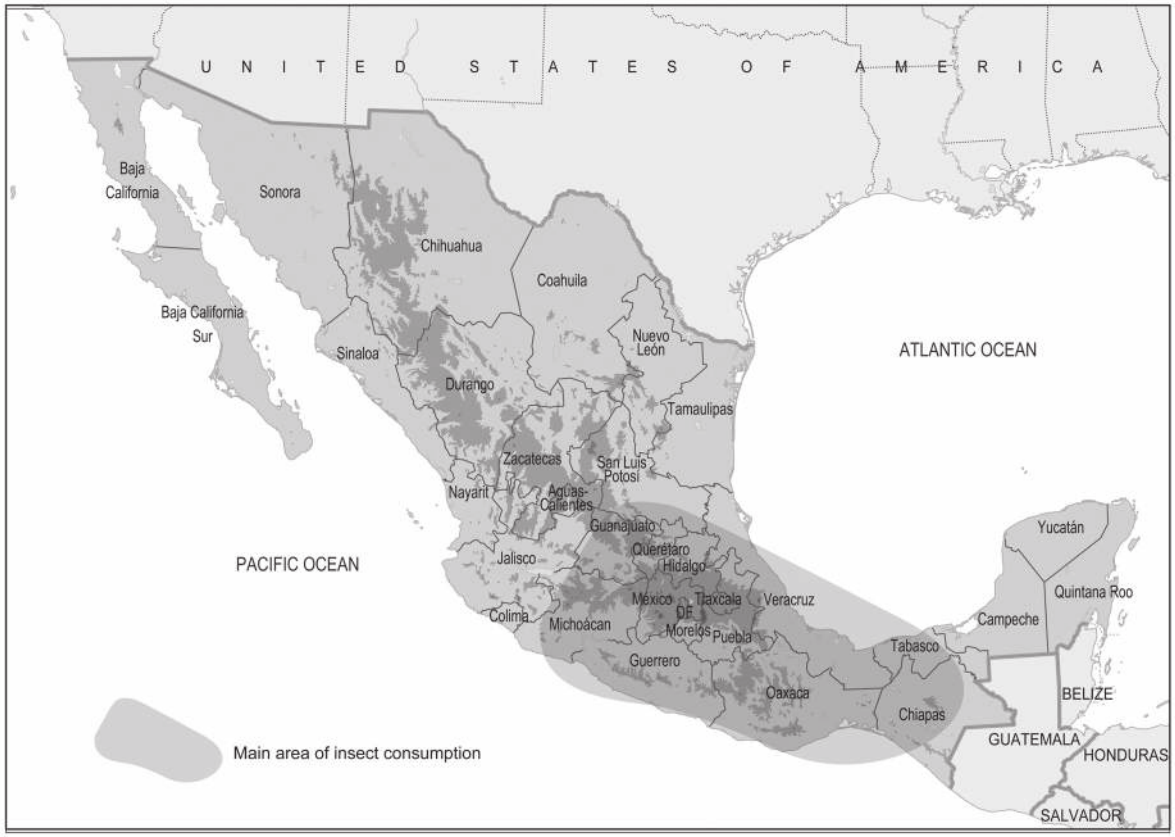

Figure 2.5 Main areas of insect consumption in Mexico

She has also shown that insects constitute a good source of proteins, minerals and vitamin B and have high digestibility (Ramos-Elorduy 1982, 1997). The high nutritive potential of the insects recently attracted the attention of FAO, promoting insect consumption to contribute to the struggle against hunger and ill-nutrition, as insects are not only rich in protein, minerals and vitamins, but are also low in fat. Insects are now being raised for animal feed and human consumption (Huis et al. 2013).

People who do not eat insects tend to think that the consumption of insects is consequent to poverty. Actually insects are too small to fill hungry bellies. However, in Mexico, they compensate the poor intake of animal products in indigenous people's diet. In most Indian villages, animal breeding is a minor backyard activity and hunting is very occasional. Usually they kill a chicken once a week or every 2 weeks, and bigger animals for festivals. Only over the last 20 years, has meat consumption in rural areas experienced an increase, due to the remittances from migrants residing in the United States. For indigenous people, insects are not perceived as an emergency food or a poor people's food (as for instance, wild greens): they are a tasty food (Katz 1996).

The problem with insects is that they are available in small quantities or in specific periods. As we observed in the field, people might find, during the maize harvest, one 'maize caterpillar' (*Heliothis zea*) in a maize cob, a few grasshoppers or crickets in the grass, while at another time they will harvest ten *Coleoptera* larvae from a tree trunk, three caterpillars from an agave leaf or will catch a wasp's nest to grill the larvae. Collecting an insect does not occur every day but is relatively frequent all through the year.

Only some species (social insects) are found in large quantities (Ramos-Elorduy 1997). In the Mixtec highlands, in the dry season, when it is windy, forest bugs (*Hemiptera*) of different species (*Edessa* spp.), called *chinches* or in other regions *jumiles,* can be collected in epiphytic *Bromeliaceae*. Children climb the trees, grab the epiphyte, bring it down to the ground and shake it until all the bugs fall from it. They eat them alive and appreciate them for their spicy taste, reminiscent of chilli pepper. If they bring them home, their mother grills and then grinds the bugs in a mortar to make a hot sauce. At the very beginning of the rainy season, below 1500 metres of altitude, the nuptial flight of big ants called *arrieras* (*Atta mexicana*, *A. cephalotes* and *Pogonomyrmex* sp.) takes place for a few days. Braving ant bites, people are eager to catch the *alate* adults, called *chicatanas*, while they are mating (Katz 1996). At that period, as people can collect one to two kilograms, grilled *chicatanas* can be found in local markets. *Jumiles* (bugs) and *chicatanas* are particularly appreciated in the States of Guerrero and Oaxaca (Ramos-Elorduy 1982). *Jumiles* are also sold in the markets of the States of Mexico and Morelos and *chicatanas* in the State of Veracruz.

In the Valley of Oaxaca, the Zapotec farmers have techniques for collecting large quantities of grasshoppers (*Tettigoniidae*) and crickets *(Acrididae)*, both called *chapulines*, that are sold in city and villages markets, and grilled with salt, chilli pepper and lemon. They are also consumed, and occasionally sold in small quantities in markets of the central highlands (Ramos-Elorduy et al. 2012).

Another local treat is the 'red agave worm' (*gusano rojo de maguey*), a caterpillar *(Comadia redtenbacheri)* well known for flavouring *mezcal* (a local agave distilled alcohol) (Ramos-Elorduy 1982). *Chapulines* and red agave worms have been known for decades as regional specialties in Oaxaca (Moedano 1988). Another caterpillar, the 'white agave worm' (*gusano blanco de maguey*; *Aegiale hesperiaris*) is traded in Oaxaca, as well as in Mexico City. It is exploited in all the highlands, from the State of Jalisco in the west to the State of Oaxaca in the East, to San Luis Potosí in the north (Ramos-Elorduy 1982).

Some insect species are typical of, and unique to, the Central Highlands. Two types of insects in particular have been highly appreciated and traded for centuries, *escamoles* and *ahuautli*, but are threatened by environmental degradation and overexploitation. *Escamoles* (in Nahuatl *azcamolli*) are ant larvae (*Liometopum* spp.). They are mainly traded from the State of Hidalgo and are now the insect most often served in Mexico City gourmet restaurants. *Ahuautli* are the eggs of different species of aquatic bugs (*Hemiptera*) called *axayacatl* (*Krizousacorixa* spp., *Corisella* spp., *Notonecta* spp.*)* (Ramos-Elorduy 1982). *Ahuautli* means 'water amaranth', as these tiny white eggs resemble amaranth seeds. According to the ethnoarcheologist Jeffrey Parsons (2006), in the 16th century, *ahuautli* was produced in abundance on the lakes of the Central Highlands and traded to the capital city. It was considered as a delicacy by the Aztec emperor and used as offerings in some Aztec rituals. Interestingly, after the conquest, it was even eaten, notably on Fridays (days without meat), by some Spaniards who, according to chroniclers, found it very tasty. At that time, different types of aquatic bugs were exploited, but only *ahuautli* was highly valued, while other species were consumed by poor people. As most of the lakes of the Basin of Mexico have been progressively dried out since the colonial period, *ahuautli* production has drastically diminished. Part of Mexico City has been built over the drained lakes, only small portions of lakes still exist in the Federal District and *ahuautli* now comes mainly from lakes in the State of Hidalgo, at a very high price (*ibid.*).

In regions where some insect species have been considered as gourmet food or regional specialties, not only Indians, but also a wider range of the population value them. Tourists to Oaxaca, for instance, are recommended to give the *chapulines* a try. Insects have therefore an ambiguous status: they symbolise the food of 'savage people', but they are regarded as valued foodstuffs. Indian people in the countryside continue to eat insects, but are sometimes limited by the degradation of the environment. People from rural areas who migrated to Mexico City or whose villages were absorbed by the city were used to eating insects, but some of them have given up that consumption at a point in their lives, because of rejection of their culture, because they associated this food habit to village life and poverty or because the resource became rare or expensive.

A few decades ago, the Market of San Juan, in the historical centre of Mexico City, provided the working classes with insects and game. In the same quarter, Don Chon restaurant, also patronized by working-class people, served dishes of Central Highlands insects: *ahuautli, escamoles* and white agave worms. But in the 1980s, Mexican cuisine and its regional components began to be promoted.

Attractive recipe books as well as scientifically based books and booklets on Mexican food aimed at a large audience began to be published (Castelló Iturbide 1986, González de la Vara 1996-97), reinforcing the interest in typically Mexican foods, especially of prehispanic origin. Associated with this movement, Don Chon restaurant gained the reputation of serving 'prehispanic food'. As mentioned above, Mexican people became more conscious of their indigenous roots in the 1990s; Mexican cuisine was declared an intangible heritage by UNESCO in 2010 and Mexican chefs, trained in haute cuisine, began to integrate local ingredients and create new dishes inspired by these traditions. Insect species considered for centuries as a delicacy naturally found their way to elegant Mexican restaurants, such as El Cardenal run by one of the leading Mexican chefs. As we observed in Mexico City, Central Highlands insects, *escamoles* and sometimes *ahuautli,* are proposed, and occasionally, *chapulines* (grasshoppers) and *chicatanas* (*Atta* ants), more commonly offered in Oaxaca. Small restaurants or bars in elegant quarters of the city (Coyoacán and La Condesa) now serve insects such as grilled *chapulines* with *guacamole* (avocado paste) as aperitif dishes. In tourist places, such as the pyramids of Teotihuacan (just outside city), small restaurants offer aperitif dishes with *escamoles* and white agave worms, possibly collected from that area, as well as *chicatana* ants, probably imported from warmer regions. Recently, luxury chocolate makers, trained in Europe or the United States, have opened shops in Mexico, especially in Mexico City. Some of them have created 'typical Mexican' chocolates, flavoured with *chapulines* or *chicatanas*. The customers of the Market of San Juan are no longer from the working class, but rather from the upper middle class or are students of gastronomy. The market is now renowned for 'exotic foods' such as game, mushrooms and insects, mainly e*scamoles*, *chicatanas*, *jumiles* and red agave worms, that the shopkeepers buy frozen and sell all year long, independently of the natural cycle of the insects. Some small companies have started over recent years to develop food products made out of insects. In the World Forum of Mexican Gastronomy, that we attended in Mexico City in November 2015, their stands presented grasshopper salt and grasshopper powder from Michoacan, and chilli sauces, in glass jars, from Hidalgo, flavoured with white agave worms or *xamues* (in this case, *Pachilis gigas, Hemiptera*), supposedly created by Otomi women. Mexican Indian people who have migrated to the United States are nostalgic for their foods and crave insects. In California, Françoise Lestage (2008) observed that *chapulines* and *chicatanas* were brought through individual networks to Oaxacan migrants; some of them even opened shops offering Oaxacan food specialties, including insects. Presently, because of strict border controls, people usually send food to their relatives in the States through private shipping companies. As a consequence, some of the valued insect species, like *chicatanas*, see their prices climbing on the regional markets and local people are now unable to buy them.

So, on the one hand, fewer Mexicans of the working classes consume insects than before and many Mexicans still reject this consumption, while on the other hand, the demand for specific insect species, considered as gourmet food, has increased. In the meantime, environmental degradation has often led to a

decrease of insects. Ramos-Elorduy (2006) is sounding the alert about the risk of overexploitation of these sought-for species, especially in fragile environments. High protein insects have been a rich and tasty component of poor people's diet. Through the integration of the tastiest species into present-day gastronomy, these are likely to escape from the people who, for centuries, have maintained knowledge of them. There are at least 500 less tasty species which have not attracted the attention of chefs.

Cultural and political turning-points of pulque and beer consumption

The traditional use of pulque from past to present

Pulque is a fermented beverage extracted from different species of the century plant or agave, in particular *Agave americana, A. salmiana* and *A. atrovirens*.[12] Agave

Figure 2.6 Pulque

(in Spanish *maguey*, in Nahuatl *octli*) is traditionally produced above 1500 metres altitude, in the highlands of the States of Hidalgo, Querétaro, Tlaxcala, Puebla, San Luis Potosí, Mexico, Michoacán, Jalisco, Guerrero, Oaxaca (Figure 2.7). It is often planted at the limit of two plots, on the edge of agricultural terraces, preventing the soil from being washed out by the rains.

To produce *pulque*, people scrape the 'heart' of the century plant, after having cut out the central floral sprout, to form a receptacle where the sap accumulates. The agave is scraped every day for several months, until the plant dies. The fresh sweet-tasting sap is called 'honey water' in Spanish (*aguamiel*) and 'honey' in several indigenous languages (for instance, *necutli* in Nahuatl). An agave plant produces from 2 to 7 litres of sap per day, and from 200 to 500 litres over a period of 3 to 4 months. The sap is left to ferment naturally for two or three days, attaining an alcoholic content of 5 to 7 degrees proof. In the Central Highlands (*Altiplano Central*), small farmers, called *tlachiqueros,* take care of the agave plants, scrape them and collect the sap. In that region, in the 1970s, *haciendas* produced *pulque* in much larger quantities; there the sap was left to ferment in large barrels called *tinacales* (Fournier 1983). As we have observed in the Mixtec highlands, either men or women collect the sap, prepare the *pulque* and sell it in the market. In the State of Tlaxcala, we have noticed that some farmers leave the sap to ferment inside the century plants around the maize fields, so when they work in the fields they can drink the *pulque* straight from the plant.

When we started our fieldwork at the beginning of the 1980s, *pulque* was frequently consumed in villages and small towns of regions with a high percentage of indigenous populations, such as the Central Highlands or the Mixtec highlands. However, in Mexico City, *pulque* had very adverse connotations. It was associated with rural habits; it was considered as unhygienic and *pulquerías* (*pulque* taverns) were regarded as dirty working-class bars. In villages of the Central Highlands, Dominique Fournier (1983) observed in the late 1970s that this negative feeling was affecting the local farmers who were becoming ashamed of drinking a 'beverage of Indians' and that *pulque* production in *haciendas* was significantly decreasing. Why was *pulque* so despised while it was on the table of the Spanish elites in the colonial period?

In the Central Highlands, archaeological evidence of *maguey* scraping date back to the 4th century BC (Parsons and Parsons 1990). Since prehispanic times, the century plant has been playing an important part in the economy and subsistence of the native people. It is a multi-use plant embedded in multi-dimensional aspects (social, economic, cultural, ecological, political). Now, as in the past, people eat the leaves and the flowers when cooked, draw starch, sugar, liquid, alcohol out of the plant, wrap food to be cooked in the leaf cuticle (*mixiote*), use the leaves to hold or cover food or other substances, even to protect roofs, use them as medicine, and use the fibre to weave or sow and the thorns as needles (Parsons and Parsons *ibid.*; Ramírez 2012). After the Spanish conquest, the chroniclers, in particular Bernardino de Sahagún (1999), described the use of *pulque* in its cultural context. On a daily basis, among the Aztecs, old men strictly regulated its consumption to avoid excessive drunkenness among young

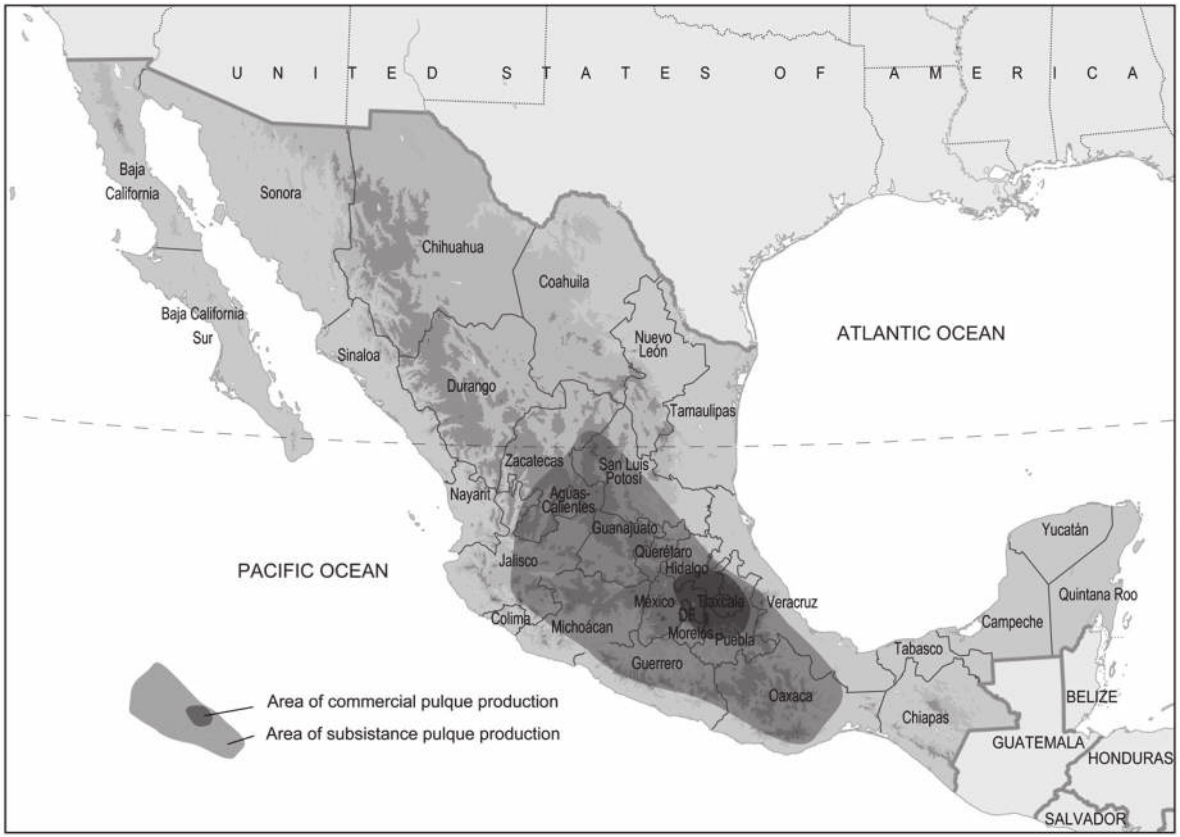

Figure 2.7 Main areas of pulque production in Mexico

people, but both men and women drank it during festivals. Offerings of *pulque* were performed in many ceremonies and agricultural rituals (Sahagún, 1999). According to myths or legends collected among the Aztecs at that period, the *pulque* gods, the *Centzon-Totochtin* (the 400 rabbits) took care of the agave, the harvests and the abundance of food resources (Fournier 1983; Fournier and Mondragón 2014). The Aztecs conceived of *pulque* as blood. The agave plant has its 'heart' opened to extract blood symbolically, and after giving all its blood, it dies (*ibid*.). Similar symbolism persists among contemporary indigenous people. For the Mixtecs, *pulque* (called 'white liquid', *nute kwixi*) is compared to sperm, milk, blood and rain. It is supposed to be 'pure blood' and is recommended for breast-feeding women. The farmers say a prayer and bless the sap on its first extraction and when the first *pulque* has fermented. They always pour it on the earth as an offering before drinking it. In some highlands villages, farmers pour it on the earth when they start planting maize. They also make an offering of *pulque* when praying for the rain, as well as in therapeutic rituals (Katz 2002). *Pulque* is not only an alcoholic beverage, it is a nutritive substance, considered as food. In the Central Highlands, children took *aguamiel* or *pulque* for breakfast, at least until recent decades (Fournier 1983), lactating women drink it too, and men drink it while working in the fields 'because it gives them strength' and keeps them hydrated (Valadez-Montes 2014), as Tlaxcala farmers explained to us.

Pulque and politics from the colonial period to the 20th century

After the conquest, the Spaniards adopted *pulque* as an alcoholic beverage, but without taking into account its ceremonial use. During the colonial period, *pulque* and wine stood together on the table of the Spanish and Creole elites. Wine was restricted to the upper classes, but *pulque* was a very popular drink for the whole population (Becerra 1988; Fournier 1983; Ramírez 2012). At the beginning of the 17th century, as *pulque* had become an important economic source, the Spaniards enacted the first laws in order to regulate its production and commercialisation. The vice-king and the ecclesiastical authorities controlled the *maguey* cultivation and the *pulque* production. The Spaniards transformed lands in the centre of Mexico, with dry and poor soils, into the first *pulque haciendas*, a lucrative business. At the end of the 18th century, the first *pulquerías* produced and sold *pulque* on a larger scale, so as from 1785 to 1789, *pulque* was among the four products that generated the highest tax revenues (Loyola 1956).

After Independence (1821), *pulque* continued to represent a very important economic source, but its golden era occurred during the presidency of Porfirio Díaz (1876–1910). The introduction of the railway, in the 1870s, accelerated the business, as it allowed thousands of barrels to be sent to Mexico City from the *haciendas* located on the railway route between the capital city and Puebla, an area called the Apan Valley (*Llanos de Apan*).[13] Some *hacendados* of that region started occupying political cargoes at the regional and national level. They also acquired a high number of *pulque* taverns all over Mexico City. The federal government could not ignore the power of the *pulqueros* and their investments in big

companies. The *Compañía Expendedora de Pulques*, owned by *hacendados*, Mexican deputies and government officials, monopolised the production. In 1895, there was a *pulque* production of almost 3 million hectolitres that represented 80.3% of all the alcohol consumption, and in 1903, it reached a peak of 7 million hectolitres representing 86.7% of all the alcohol consumption (Ramírez *ibid.*: 90–91).[14] At the beginning of the 20th century, the *pulque hacendados* were rich and powerful people. Around 275 *haciendas,* from small to enormous, covered 250,000 hectares, growing 150 to 200 million agave plants *(ibid.*: 52–53). But in 1907, *pulque* production decreased to 4.6 million hectolitres (*ibid*.: 90).

Federal deputies who feared the *hacendados'* escalating power, as well as various ecclesiastic authorities criticising the high alcoholism rate, started to make a case against the consumption of *pulque*. The Catholic and laic press published articles describing the Mexican population as physically and mentally degraded because of *pulque*. But at that time, *pulque*, like maize, beans and chilli pepper, was considered as part of the basic diet of peasants and workers, as well as of the middle class. If a worker earned a salary of 30 pesos per month, he spent an average of 5 pesos on *pulque*, 5 pesos to buy maize, beans and chilli pepper, 5 pesos for the house rent and 3.5 pesos to buy meat.[15] The use of this sort of information, the anti-alcohol campaigns, and the defamation of *pulque* triggered the downward spiral of its production (*ibid.*: 61). Moreover, part of the political elite of the North tried to destroy the *pulque* empire by publishing articles about violence in Mexico City due, according to them, to the high consumption of *pulque*. Scientists reinforced the idea of a relationship between high criminality rates and alcohol consumption, in particular *pulque* (*ibid.*: 68; Nemser 2011).[16] As it was difficult to control the cleanliness of the barrels, the quality of the fermentation and the illegal commercialisation, the *pulque* industry received many attacks because of its non-hygienic processing (Valadez-Montes *ibid*.). With all this negative publicity, from the 1300 *pulquerías* that existed in Mexico City at the beginning of the 20th century, only 700 were left in 1910 (Mercadotecnia 2010).

Moreover, the Mexican Revolution, starting in 1910, provoked the dismantling of the *haciendas* associated with the former Porfirio Díaz regime. The new regime represented by Venustiano Carranza, clearly favoured the beer industry, as the wheat and barley were produced in the north of Mexico where Carranza supporters predominated. The new political elite tried to destroy the 'ancien régime' represented by the *pulque hacendados*: they redistributed *haciendas* lands, led anti-alcohol campaigns, regulated the *pulquerías*, increased the taxes on *pulque* and marginalised *pulque* as a 'poor' or Indian beverage. Afraid of being jailed, many *hacendados* fled to Europe. From the late 1920s onwards, the area of land dedicated to growing agave plants, as well as the *pulque* production, significantly decreased, while the beer industry started to develop (Escalante and Gosset 2008; Medellín 1980). In 1923, a change was exacted on alcohol taxes, to the disadvantage of *pulque* and the advantage of beer, and taxes on *pulque* further increased in the 1930s and 1940s (Valadez-Montes *ibid.*).

Beer production had been for a long time a very minor industry. In the 16th century, under the rule of Emperor Charles V, the New Spain government gained authorization to produce beer, but as barley and wheat were scarce, this production remained on a minor scale. During the colonial period, the Spaniards imported beer from Europe, but people hardly consumed it as it was scarce and expensive. Beer production started to develop only by 1875, thanks to German immigrants who brought their specific know-how and technology. By 1903, the Germans –and a few other people – had already created 19 beer factories in different parts of the country. The biggest brewery, Cuauhtémoc, in Monterrey, already produced 1 million litres in 1893 and kept on growing (Reyna and Krammer 2012). Unlike *pulque*, beer could be bottled and easily transported and stocked. The alliances between the post-revolutionary government, the religious officials and the beer industry reinforced the image of beer as a better, healthier and more hygienic product than *pulque*. The promoters of beer recommended consuming it during meals, so it started to be introduced in restaurants (while *pulque* was only served in taverns). After the 1920s, beer production started to increase until it became the most popular alcoholic beverage everywhere in the country, even in indigenous villages, as shown in Figure 2.8.

In the 1920s, *pulque* definitely lost the battle against beer. Nevertheless, the *pulque* production, although decreasing, was still resistant, as it benefited from new consumers, the peasants migrating to Mexico City. In 1933, the first

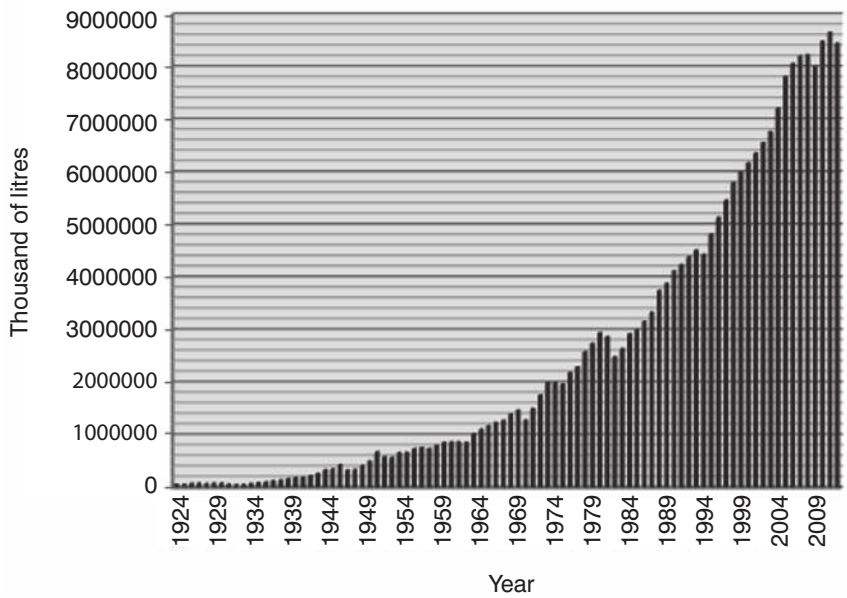

Figure 2.8 Production of beer in Mexico (1924–2014)

Source: SIAP-SAGARPA, 2015, Estadísticas Agropecuarias Nacionales http://www.siap.sagarpa.gob.mx (retrieved on 09 November 2015)

patent to bottle *pulque* triggered the creation of several small industries, but from then on *pulque* was considered a 'dirty' alcoholic beverage, drunk only by poor farmers, workers and indigenous people. With the land reform carried out under the government of Lázaro Cárdenas (1934–1940), the distribution of the lands of the *pulque haciendas* provoked a more serious crisis in production. The agave cultivation area diminished to more than half between 1930 and 1970 (Figure 2.9), although in the 1960s, the government of President López Mateos tried to boost agave cultivation. In 1953, in Hidalgo and Tlaxcala, the taxes of the *pulque* production still represented respectively 30 and 50% of the total government revenues, but in the 1970s, they did not even reach 1% (Loyola, 1956; Comercio Exterior 1978). Here, we go back to the situation of the 1980s described above: *pulque* was despised, beer was inundating the market, but *pulque* was still consumed although in much smaller quantities than beer, in so-called marginal areas such as the Mixtec highlands, and even in rural areas near Mexico City, such as Milpa Alta.

Pulque revival

However, nutritional studies brought to light the fact that *pulque* contained proteins, vitamins B, D and E, and a high proportion of vitamin C, minerals and sugars (Correa-Ascencio et al. 2014). At the beginning of the 1990s, as the indigenous roots of the country again started to be appreciated, *pulque* was valued as a traditional beverage. The *maguey* started to be cultivated once more in Hidalgo, Tlaxcala, Puebla, Querétaro and, to a lesser extent, in Veracruz, Michoacán, Guerrero and Oaxaca (Figure 2.10).

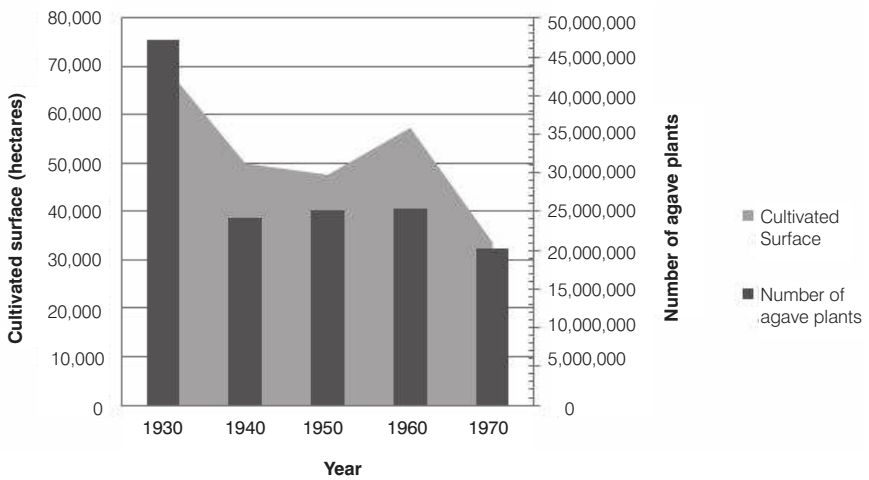

Figure 2.9 Cultivation of agave (maguey) between 1930 and 1970

Source: Censos Agrícola, Ganadero y Ejidal; Anuario Estadístico de los Estados Unidos Mexicanos; Oficina de Estadísticas de la Contaduría de la Federación y Patronato del Maguey (Comercio Exterior 1978: 1314).

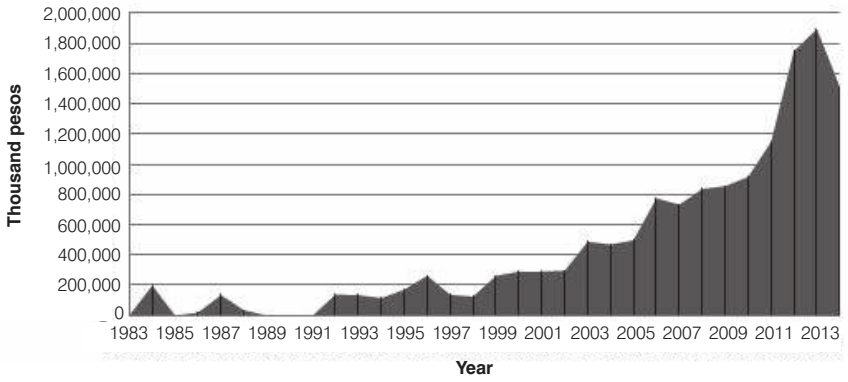

Figure 2.10 Production value of maguey

Source: SIAP-SAGARPA, 2015, Estadísticas Agropecuarias Nacionales, http://www.siap.sagarpa.gob.mx (retrieved on 09 November 2015)

In regions of traditional *pulque* production, many annual *pulque* fairs have been created after 2005: in the Federal District ('Gastronomic Maize and *Pulque* Fair', Milpa Alta, since 2011; 'I love *pulque*', Mexico City, since 2016) and the States of Mexico ('The Rabbit and *Pulque* Fair', Huixquilucan, since 2006), Hidalgo (Ocampo, Apan Valley, since 2006), Puebla (Ozolco, since 2012), Michoacán ('Beverage of the Gods' Fair, Tupataro, since 2013), Oaxaca (Tlaxiaco, since 2007). In 2016, the organisers of Tlaxiaco *pulque* fair pointed out that agave production was decreasing in their region and that they were hoping the fair would help to boost it.[17] Around the same period, chic *pulquerías,* attended by young people, appeared in Mexico City, Tlaxcala and Puebla. They are very different from the old style *pulquerías* that were mainly attended by men of the working classes. *Pulque* is sold in these bars as an organic and nutritious alcoholic beverage, frequently mixed with fruit juices. In the villages where *pulque* has always been consumed, people occasionally mix *pulque* with fruit juice (called *pulque curado)*, but it is more commonly drunk pure. The fruit juice probably attenuates the fermented taste of *pulque* and makes it more acceptable to a sector of the population that was not raised drinking it. This new gourmet market has provoked an important increase in the value of the production over the last 10 years (Figure 2.10), although it does not reach the production rates of the previous decades. In Guadalajara, a small catering company run by militant young people is promoting *pulque* tasting with different flavours and offers *pulque*-based cocktails, with tortillas chips and a *pulque* and cheese chilli sauce, which was traditionally made in some villages of that region.

Since Mexican cuisine was labelled a 'World intangible heritage' by UNESCO, *pulque,* as a traditional drink and heritage, is more valued. *Pulque* stands, from Puebla and Hidalgo, were present at the last World Forum of Mexican Gastronomy in Mexico City in November 2015. The vendor from

Puebla emphasised the nutritional values of *pulque*, arguing that his company had been a pioneer in seeking scientific research collaboration.

Producers in Hidalgo, State of Mexico, Federal District (Milpa Alta) and above all Puebla and Tlaxcala are producing *pulque* for commercial purpose, especially to sell it in Mexico City. Producers from Milpa Alta also sell *pulque* on week-ends in touristic towns of the State of Morelos visited by people from Mexico City. Puebla producers do not actually completely fulfil the demand. Puebla traders buy *pulque* in village markets in the Mixtec highlands from small farmers, estimating it to be of very high quality (Diana Lope Alzina, personal communication).

In Tlaxcala, *pulque* producers who persevered and kept cultivating agave in spite of adversities, argued that *pulque* was a local heritage, a collective asset of the people, with nutritive and medicinal properties (Valadez-Montes, 2014). In 2012, when we visited the Industrial Magueyera Mexicana, a small *pulque* industry in Altzayanca, Tlaxcala, the owner, Víctor Manuel Cervantes, explained: 'there are many alcohols, but we are producing *pulque*, the only alcoholic beverage representative of Tlaxcala. [In prehispanic times] this product was the beverage of kings; other people who dared to consume it were sacrificed'. He is referring to the glorious prehispanic past, presenting *pulque* as an elite drink, and enhancing regional identity. This company produces 3000 litres per month of *pulque*; 60% of the production is kept in oak barrels for 3 years, 20% is flavoured with aniseed, and the rest with other flavours. This company sells its products in touristic places such as the archaeological site of Cacaxtla (Tlaxcala). Manuel Sánchez Armas, the owner of another company, Industrial Magueyera, struggles for the cultural re-appropriation of *pulque* by Mexicans. Twenty years ago, he canned *pulque* that he distributed in supermarkets and sent to the border city of Tijuana for North American and Mexican consumers (Ceballos 2001). Now, he is producing fine *pulque* and agave honey aimed at the gourmet market of Tlaxcala and Mexico City. During an interview, he confided: 'We are looking for a new broker to export it, but we do not have much capital and we do not receive any financial support from the government.' Nevertheless, he continues to look for commercial alternatives (Ceballos *ibid.*). All these small, family enterprises are trying to recover *pulque* as the 'nectar of the gods' and to reintroduce it as an ethnic and organic product in the Mexican food culture.

Pulque is therefore re-conquering the consumers, but it will probably never regain the importance it had at the end of the 19th century. Above all, it has tremendously decreased in the consumption of the poorest people who have replaced it by less nutritious or stronger alcohols and less nutritious industrial foods.

Conclusion

According to Parsons (2010), in the Mexican Central Highlands, in the prehispanic period, the combination of maize/beans/amaranth with agave cultivation and, moreover, exploitation of lake resources (including aquatic

insects, spirulina, fish, ducks, frogs, etc.) was very efficient in providing an adequate diet. After the Spanish conquest, amaranth was suppressed as a staple and the lakes around Mexico City were progressively drained, depriving the surrounding population of highly nutritious foods. Scientific analyses of nutrient components of these prehispanic foods have, in the last decades, shown that amaranth, insects and *pulque* were definitely super-foods. As such, their consumption is now promoted, but we doubt that it will regain to the importance it used to have during the prehispanic period, or even at the beginning of the 20th century. It does not seem either that the lower classes who consumed them will fully reintegrate them into their diet. The fluctuating fate of these super-foods over the last five centuries reveals relationships of power, first between the colonisers and the colonised, then between social classes, ethnic groups and political parties, based on economic interests. Nowadays, diets are being homogenised, industrial food is more and more consumed, most crops are grown with pesticides, and poor nutrition is causing major health problems. Going back to the super-foods of the past and the deep roots of Mexican identity is a good solution, as long as everybody, rich or poor, benefits from it. As usual, these foods are likely to escape the poorest people who need them more.

Notes

1Acknowledgements for the most recent fieldwork: The fieldwork conducted in 2011 in the Mixtec highlands (Oaxaca) (both authors) was funded by the European Union project 'Engov-Bek(onal)', *Environment and Governance in Latin America-Building and Exchanging Knowledges on Natural Resources* (2011–2015) (FP7-2010) (SSH-CT-2010-266.710) ; fieldwork in Tlaxcala (Elena Lazos) by CONACyT/CIBIOGEM project *Impactos sociales, económicos y culturales de la posible introducción de maíz genéticamente modificado en* México (2012–2015) ; fieldwork in Mexico City, Morelos and Oaxaca in 2015 (Esther Katz) by Sorbonne-Universités project 'PALIM' *Patrimoines alimentaires et Pratiques culinaire*s (2014–2016); This part of Katz's research is also included in ANR project 'FoodHerit' *Food Heritage and Gastropolitics* (2013-2017) and Sorbonne-Universités project 'PALSAN' *Patrimoine Alimentaire et Santé* (2014-2015).

2 The area of central and southern Mexico and the north of Central America, which corresponded roughly with the Aztec empire, were defined as the 'Mesoamerican cultural area' by Paul Kirchhoff (1992). The arid areas of northern Mexico were mainly, but not exclusively, populated by hunter-gatherers, called 'Chichimec' by the Aztecs.

3 For instance, foodstuffs from the lowlands, such as chilli pepper and cocoa beans, were brought as tribute to the Aztecs.

4 Most early colonisers came from southern Spain (Andalusia and Extremadura) where the Arab-Andalusian culture developed until the expulsion of the Arabs in 1492. Colonial Mexican cuisine, like colonial architecture, has inherited elements from the Arab-Andalusian influence.

5 Nahuatl was used as a *lingua franca* in the Aztec empire, and then in New Spain. It is still spoken today by about a million and half indigenous people (INEGI 2010). For example, the Spanish words for 'chilli pepper' (*chile*), 'tomato' (*tomate*) and 'avocado' (*aguacate*) originate from the Nahua names *chilli, tomatl* and *ahuacatl*; on the other hand, plant names like *maíz* (maize) or *maguey* (agave, century plant) come from

Taino, an Arawak language spoken in Hispaniola (Santo Domingo/Haiti) where Colombus landed in 1492 (Torres, 1985).

6 According to Jonathan D. Sauer (1950), *Amaranthus* and *Chenopodium* species can be recognized and differentiated on the illustrations of the 16th century: the plants with entire leaves are amaranths and those with dentate leaves chenopods.

7 Related species with small grains were domesticated in the Andes: *kiwicha (Amaranthus caudatus), quinoa (Chenopodium quinoa)* and *qañiwa* (*Chenopodium pallidicaule)* (Hernández-Bermejo and León 1994).

8 Recently, the anthropologist Françoise Neff (2005, and personal communication 2015) confirmed these observations and, moreover, has observed that amaranth is still used by the Nahua Indians of that region in offerings, called *tzoalli*: as the Aztecs did, they shape maize and amaranth dough into mountains or snakes, to pray for rain.

9 http://www.mexicodesconocido.com.mx/santiago-tulyehualco-y-la-feria-de-la-alegria-y-el-olivo-distrito-federal.html; http://www.fiestasdemexico.com/2015/12/feria-de-la-alegria-y-el-olivo-2016.html (retrieved on 22 February 2016)

10 It is now known that a seed of grain amaranth is on average composed of 13.1–21.0% crude protein; 5.6–10.9% crude fat; 48–69% starch; 3.1–5.0% (14.2%) of dietary fibre and 2.5–4.4 % ash. Proteins have high digestibility (approx. 90%) and are rich in lysine (4.9–6.1 g per 100 g of protein) (Grobelnik-Mlakar et al. 2009).

11 Curiously, as observed by E. Lazos, the Yucatec Maya Indians eat very few insects, compared to Indians of other regions.

12 There are more than 200 species of agaves in Mexico, some have specialized use in the production of sap for alcoholic beverages (*tequila, mezcal, pulque*), others in the production of fibres and sisal.

13 In 1896, around 400,000 litres were brought daily to Mexico City, which had a population of 400,000 people. In those days, the *pulque* industry involved around 128,000 workers (Loyola 1956).

14 Anuario Estadístico de la República Mexicana 1895, Dirección General de Estadística, Dr. Antonio Peñafiel, Oficina Tipográfica de la Secretaría de Fomento, 1896, México, pp. 798–799 and 809.

15 Information from *Memoria que presentó el Secretario de Hacienda al Congreso de la Unión*. 1909–10, México, Tipografía de la Impresora de Estampillas, 1911 (González 1970: 391).

16 It echoed a previous action led by the colonial government who, during the revolt of 1692, blamed the violence on *pulque*, attempted to regulate it. However, at that time, as everybody drank *pulque*, the government distinguished the pure 'white *pulque*', drunk mainly by the elite, from the 'mixed *pulque',* consumed by the plebeian masses. The elites used the 'mixed *pulque*' as a metaphor of race mixing (*mestizaje)* and condemned it as a threat to political stability. These feelings and ideologies permeated the centuries (Nemser 2011).

17 http://alianzanahuaca.org/2014/09/27/feria-gastronomica-del-maiz-y-el-pulque
http://ciudadanosenred.com.mx/feria-del-pulque-i-love-pulque
http://www.24-horas.mx/inauguran-feria-del-pulque-en-hidalgo
http://alianzanahuaca.org/2013/02/27/2da-feria-del-pulque-en-ozolco
http://www.flotrawww.ignaciomartinez.com.mx/noticias/1a_feria_de_la_bebida_de_los_dioses_en_tupataro_29384
https://oaxaca.quadratin.com.mx/Anuncian-Feria-del-Pulque-en-Ojo-de-Agua-Tlaxiaco
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'... wrestles down the concept and practices of producing and consuming 'traditional foods', without falling either into the ethnocentric, nationalist, rendering of tradition, or the blanket denunciation of the very concept of tradition by critical scholars...

The authors do a great service in trying to draw the boundaries of the modern and the traditional, past and the present, community and consumer practices, to enable us to protect what comes from long duration and is widely shared from the commons without the protection of intellectual property rights, against the encroachment of private, commodified, consumer culture, undertaken primarily for profit and for social prestige.' *– From the Foreword by Krishnendu Ray, New York University, USA, and President of the Association for the Study of Food & Society*

Due to its centrality in human activities, food is a meaningful object that necessarily participates in any cultural, social and ideological construction and its qualification as 'traditional' is a politically laden value. This book demonstrates that traditionality as attributed to foods goes beyond the notions of heritage and authenticity under which it is commonly formulated.

Through a series of case studies from a global range of cultural and geographical areas, the book explores a variety of contexts to reveal the complexity behind the attribution of the term 'traditional' to food. In particular, the volume demonstrates that the definitions put forward by programmes such as TRUEFOOD and EuroFIR (and subsequently adopted by organisations including FAO), which have analysed the perception of traditional foods by individuals, do not adequately reflect this complexity. The concept of tradition being deeply ingrained culturally, socially, politically and ideologically, traditional foods resist any single definition.

Chapters analyse the processes of valorisation, instrumentalisation and reinvention at stake in the construction and representation of a food as traditional. Overall the book offers fresh perspectives on topics including definition and regulation, nationalism and identity, and health and nutrition, and will be of interest to students and researchers of many disciplines including anthropology, sociology, politics and cultural studies.

Brigitte Sébastia is Researcher in Anthropology at the French Institute of Pondicherry, India.

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