

CHOCOLATE AT LUNCH: THE COPIA PRESENTATION

A colleague once told me that lunch-time presentations should be three things: provocative, interesting, and short. I will try for three, but two out of three might not be bad.

Chocolate is history: it is more than a confection; is more than the sum of its interesting phytochemicals. Chocolate is history: chocolate reflects peoples, cultures, and events from antiquity to present, for when we taste chocolate we share a common connection through time - from the period of the early Olmecs who lived in Mesoamerica more than three thousand years past, through the period of conquest and colonization when frothy cacao beverages prepared at the court of King Moctezuma were served to Cortéz and his men, to where we dine today at COPIA in the 21st century era of specialty and up-scale chocolates.

Chocolate is history: chocolate tells the story of people and events. There may be as many as 2 million plants globally; of these, less than 1500 find their way into local, regional, national, or international commerce. Of these 1500 less than 500 are domesticated. Of the domesticated species only a very few have captivated the imagination of humans for so long, as has cacao -- cacao, the essence of chocolate.

Chocolate can be manufactured and marketed, but in reality one tastes chocolate – and in the tasting chocolate reveals its soul. The ancient Olmec knew this; the ancient Aztecs and Mayans knew this, for chocolate is unique among the delightful plants domesticated by humans.

So when we trace the history of chocolate and its medicinal uses, we embark upon an exploration through time and geographical space. It is widely known that cacao is native to the Americas, probably domesticated in the Central American hot, humid zones of southern Mexico, probably a geographical area encompassing the states of Tabasco, Oaxaca, and Chiapas, and the border regions between southern Mexico and northern Guatemala.

Five hundred years ago in central Mexico, two specific words for the seeds of the cacao were commonly used: *quauhcacahuatl* – represented the best quality cacao beans that were used for currency. The second word, *tlacacahuatl*, was attached to lesser quality cacao beans that were used to prepare beverages. Beverages you say? From antiquity until the mid-19th century, cacao was prepared only as a beverage, and the chocolate confectionery industry developed only after development of cacao-butter extraction technology.

The ancient Maya and Aztecs grew cacao on plantations that were controlled and managed by priests. Generally, cacao – as a beverage – was reserved for priests, highest government officials and military officers – all who were male, and cacao rarely – if ever – was served to women or to children.

The English name, cacao, is ancient and derived linguistically from Olmec and subsequent Mayan dialects, while the *Nahuatl* or Aztec terms – *cacahuatl* or *xocoatl* – were borrowed from Mayan. Both these words essentially mean a beverage prepared from cacao and water. The

English word, chocolate, of course, stems from the Aztec term – cacahuatl. Cacao-related terms subsequently were adopted and the vocabulary was expanded by the Mayan peoples until today, more than 30 Mayan languages-dialects exhibit an extensive, diversified cacao-related vocabulary.

According to Mayan mythology, cacao had a divine origin: *Xmucane*, one of creation gods, is invented nine beverages; from these, humans were formed and fed themselves. Of these nine beverages, three were made with cacao and corn.

Many centuries before arrival of the Spanish in Mesoamerica, intricate, multi-colored documents – known as codices in the West – extolled cacao in everyday life and ritual. In the decades that followed contact between the Spaniards and the indigenous peoples of Mesoamerica, hundreds of descriptive accounts, monographs, and treatises were published that contained information on agricultural, botanical, dietary, geographical, historical, and medical aspects of cacao.

This rich body of literature appeared in a myriad of languages, among them English, French, German, Latin, Spanish, even Swedish. In addition, learned theses and dissertations written during the 20th century have examined the general history of cacao, while numerous trade books published during the past decades have extolled chocolate's merits and uses.

So who are we? I have the pleasure to coordinate the history of chocolate research project, sponsored by Mars, at the University of California, Davis. We have had two research activities for the past three years: first, we have searched archives and libraries in Mesoamerica, the Caribbean, Spain, and California, to identify historical cacao-related documents. Second, members of my team have conducted fieldwork in Mesoamerica and the Caribbean to determine medicinal uses of chocolate, both historical and contemporary uses.

Chocolate pre-dates Olmec times, and the lowland Mayans adopted cacao use from the Olmecs. There then came a time when events shifted from the Mayan lowlands and southern regions of Mexico to the central valley of Mexico with arrival of peoples known as the Toltecs. One of the great Toltec religious stories relates how cacao was provided to humans.

It is written in the *Tonalamatl*, the Toltec book of the prophecies, that the gods felt sorry for all the labor the Toltec people had to perform and decided that one of gods, themselves, should go down to Earth to help humans by teaching them science and art. Thus it was that *Quetzalcóatl* took the form of a man and descended on Tula, the city of workers and good men. And it was done. And because *Quetzalcóatl* loved mankind the god gave humans the gift of cacao, which he had stolen from his brother gods who had jealously guarded the tree. And it was that *Quetzalcóatl* planted the tree in the fields at Tula, and asked the god *Tlaloc* to nourish it with rain, and the god *Xochiquetzal* to decorate it with flowers, and the little tree gave off fruit and *Quetzalcóatl* picked the pods, toasted the fruit, and taught women to grind it, and how to mix it with water in pots, and in this manner humans obtained chocolate.

Then came a time when the Toltecs declined in power and the stage was set for a new military conquest and cultural upheaval, for the Mixteca, known in English as the Aztecs, arrived in the central valley of Mexico during the 14th century. The Mixteca warriors subdued the indigenous

tribes that had flourished in the valley who previously had occupied lands adjacent to the great lake – Texcoco. And it was that the capital of the Aztec confederation rose, architecturally, from the lake, itself, as the great city of Tenochtitlan was constructed on two islands in the lake.

By the turn of the 16th century the Aztecs had installed a strong economic, political, military presence in the central valley. Their island capital, Tenochtitlan was an extraordinary architectural achievement. Its population at the beginning of the 16th century has been variously estimated between 250-350,000 people, making the Aztec capital among the largest cities in the world at that time. By all available accounts the Aztec city-stronghold had a population greater than 16th century London, Paris, or Rome.

The Mexica-Aztecs loved chocolate, more correctly, the nobility and male soldiers loved chocolate. Before initial European contact in 1519, cacao was prepared only as a beverage, a food reserved for adult males, specifically, priests, highest government officials, military officers, distinguished warriors, and occasionally sacrificial victims for ritual purposes. This age-gender-social status differentiation was imposed because cacao was perceived as intoxicating, and therefore, unsuitable for women and children.

After Hernando Cortés landed on the east coast of Mexico near modern-day Veracruz in 1519, events moved rapidly. Cortés burned his fleet to prevent mutiny, then led his troops inland towards the Mexica capital, Tenochtitlan where the Spaniards were received by King Moctezuma. Cortés and his literate officers subsequently wrote accounts of their march and documented events of the Mexica conquest. Several of these 16th century manuscripts provide descriptions of cacao: here is an account from the hand of one of the Spanish officers, Bernal Díaz del Castillo:

From time to time the men of Montezuma's guard] brought him, in cups of pure gold a drink made from the cocoa-plant, which they said he took before visiting his wives ... I saw them bring in fifty large jugs of chocolate, all frothed up, of which he would drink a little.

While the confectionery history of chocolate is well known and has been the subject of numerous monographs, the medicinal and health-related uses of cacao have received less attention.

Indigenous Mexica medical views of cacao-chocolate, can be examined in several surviving documents, among them the *Badianus* and *Florentine Codices*. The *Florentine Codex* dated to 1590, was compiled by the priest Bernardino de Sahagún who arrived in New Spain in 1529. Mexica informants he interviewed cautioned against excessive use of green cacao or un-toasted cacao, but extolled the same if used in moderation. They also reported that drinking large quantities of green cacao made the consumer drunk, confused, deranged, dizzy, or sick, but if ordinary amounts were drunk, the beverage consoled, gladdened, invigorated, and refreshed the consumer.

The Florentine Codex also revealed that cacao was added to improve the flavor of Mexica medicinals, or served as a vehicle to deliver drugs, for example, *quinametli*, or the bones of the

ancient people called giants (perhaps vertebrate fossils), was blended with chocolate, then used to treat patients who passed blood from the rectum.

A second indigenous source is the *Badianus* Manuscript dated to 1552 that contains references to more than 100 different medical complaints/problems. The document identifies the healing properties of local animal, vegetal, and mineral medicines. The manuscript also stated that cacao flowers strewn in perfumed baths reduced fatigue, the bane of the Aztec governmental administrators.

Numerous English, French, and Spanish accounts of the 16th- through early 20th centuries document the presumed merits and medicinal properties of cacao and chocolate. I will now present a “taste” of these passages for your enjoyment.

Francisco Hernández published his botanical text in 1577 and presented the first detailed description of the natural history of the cacao tree. He wrote that pure cacao paste – prepared as a beverage – treated fever and liver disorders. Hernández noted that toasted, ground cacao beans mixed with resin was effective against dysentery, that frequent chocolate drinking made thin, emaciated consumers regain weight to a desirable level.

Santiago de Valverde Turices wrote his treatise on chocolate in 1624. He concluded that chocolate drunk in great quantities, was beneficial for ailments of the chest, and was a satisfactory medicine for the stomach when drunk in small quantities.

Colmenero de Ledesma published his chocolate monograph seven years after Valverde Turices. He claimed that chocolate had aphrodisiac properties, that if women drank the chocolate during their pregnancy, delivery would be eased. He praised the curative role of chocolate and claimed that it helped digestion, cured consumption, and was a remedy for jaundice. De Ledesma extolled chocolate for its role in curing kidney stones.

Thomas Gage traveled through the West Indies and Mesoamerica. Accounts of his travels caused a stir in elite circles in London when published in 1648. Imbedded in his text are chocolate-related notations that in the New World, chocolate beverages were used to treat kidney disorders, while chocolate mixed with cinnamon cured jaundice.

Henry Stubbe contributed his chocolate monograph in 1662. He remarked that physicians in the Indies recommended drinking chocolate beverages once or twice each day, to relieve tiredness caused by strenuous business activities. Stubbe wrote that in Mexico, mixtures of chocolate and vanilla were drunk to strengthen the brain. He also suggested that the oily fraction of cacao could cure the fire of St. Anthony (today known better as ergot poisoning), that chocolate mixed with Jamaica pepper provoked urine and menstrual flow, and dissipated excessive wind. Chocolate blended with vanilla, on the other hand, strengthened the heart and promoted digestion. Stubbe identified chocolate-based medicines that countered the bloody-flux, repelled tumors, alleviated toothache, strengthened the gums, quenched thirst, and if chocolate was mixed with resin, the blend cured itch, ulcers, and increased production of breast milk.

William Hughes published his ethnobotanical treatise in 1672. He reported that chocolate blended with cinnamon or nutmeg countered cough; while chocolate mixed with cloves and pepper strengthened phlegmatic stomachs. Hughes wrote that chocolate nourished the body, produced pleasant natural sleep, and especially cured pustules, tumors, and swellings commonly experienced by hardy sailors who had long been kept from a diet of fresh foods.

Sylvestre Dufour published his chocolate monograph in 1685. He noted that medicinal chocolate commonly contained anise seed, mixtures used to treat bladder and kidney disorders, and sore throat.

Nicolas de Blégny published his treatise on tea, coffee, and chocolate in 1687 and wrote that chocolate mixed with vanilla syrup cured lung inflammation, and dulled the “ferocity of cough.” Blégny wrote that chocolate reduced insomnia and restored the fatigue of preachers and others engaged in public activities. He identified a medicinal chocolate prepared with syrup of silver coins, drops of gold tincture along with oil of amber that was used by doctors of his time to relieve indigestion and heart palpitations.

De Quélus published his natural history of chocolate in 1719. He remarked that drinking chocolate repaired exhausted spirits, preserved health, and prolonged the lives of old men. He claimed that an ounce of chocolate contained as much nourishment as a pound of beef. De Quélus extolled the importance of chocolate and commented that it should be the primary beverage of elderly men.

In 1796 Antonio Lavedan claimed that chocolate was beneficial only if drunk in the morning, and cautioned against afternoon use. Lavedan reported that chocolate alone, with no other food, could keep a man robust and healthy for many years, and that drinking chocolate prolonged life. He claimed chocolate healed the stomach, cured indigestion, vomiting, and heart pain, and freed the intestines of flatulence and colic. He concluded that drinking chocolate relieved gout, increased virility, and slowed the growth of white hair.

Auguste Debay wrote his monograph on chocolate, coffee, and tea in 1864. He suggested that patients who suffered from general debilities, weak stomach, and nervous-gastro-intestinal distress, could be treated using cacao beans from different geographical locations, mixed with wheat gluten. He identified an analeptique chocolate (a restorative medicinal chocolate if you will), prepared from different combinations of cinnamon, iron hydrate, iodine, ground lichen, quinine extract, and sugar. He identified an anti-helminthic prescription, where ground cacao was combined with cinnamon, oil of croton, and sugar.

All the medicinal uses of chocolate identified, thus far, were based upon beverages or pastes prepared from the cacao bean. Our work and that of others, however, has identified additional medicinal uses for cacao-tree products as well, specifically:

Bark – to reduce stomach pain and to cure dysentery;

Flowers – to treat cuts, improve depression, and to promote bravery;

Pulp (located inside the cacao pod) – to facilitate delivery during labor;

Leaves – to stop bleeding; and

Oil (extracted from the bean) – to make the skin supple, to relieve cracked and sore lips and nipples, and to reduce irritation in the private parts.

Summarizing, during the past 450 years four consistent medical-related uses for cacao-chocolate can be identified.

First, drinking or eating chocolate in excessive quantities produced weight gain, and physicians throughout the ancient, colonial, and early modern periods have regularly recommended chocolate to restore flesh to emaciated patients, especially to those who suffered from tuberculosis.

Second, chocolate has been prescribed to patients for two opposing conditions. Chocolate has been used to stimulate the nervous systems of feeble patients, and has been highly recommended to patients who suffered from apathy or exhaustion. Conversely, chocolate was prescribed to patients identified as over-stimulated, whereby chocolate was said to calm, soothe, and tranquilize persons engaged in strenuous labor, such as soldiers, or those involved with strenuous mental activity, such as administrators, preachers, and teachers.

The fourth medical commonality was to improve digestion and elimination. Through the centuries chocolate was prescribed to strengthen weak or stagnant stomachs; to stimulate the kidneys and hasten urine flow; and chocolate, because of its fat content, was said to improve bowel function, soften stools, and thereby cure hemorrhoids.

I conclude with information from members of our team who have recently conducted research in the La Mixteca Alta region in the Central Valley of Oaxaca, Mexico; in the Dominican Republic, and in Madera, California.

In La Mixteca Alta, *curanderos*, or traditional healers, informed us that chocolate has retained its medicinal attributes, and one traditional healer recently interviewed used chocolate to cure bronchitis. In the el Istmo region of eastern Oaxaca, chocolate or cacao beans are eaten to protect against the stings of scorpions, bees, or wasps, but if the unfortunate person should be stung, chocolate products are then eaten or drunk to reduce venom effectiveness.

In La Mixteca Alta, *curanderos* use cacao to treat the medical conditions known as *espanto* or *susto*, thought to result when a person has been startled or frightened. The patient and healer return to the exact location where the fright occurred, and the *curanderos* bring with them tobacco, bowls of fermented beverages, herbs, and cacao beans. The healer then feeds and distracts the earth by planting cacao beans into the ground, as a form of payment in order to heal the patient. By restoring wealth to the earth, the evil that caused the fright is distracted, and the person affected with *espanto* then can be healed and health regained.

In the Dominican Republic our field studies have revealed that cacao/chocolate beverages have a long history of use in traditional medicine, whether to improve kidney function, reduce anemia, or to halt diarrhea. In other instances chocolate is used to relieve sore throat, to ease over-exerted brains engaged in heavy thinking, and to soothe stomachache. In the Dominican Republic chocolate beverages blended with coconut milk and onion are drunk to reduce symptoms of the common cold. Respondents also informed us that chocolate beverages strengthened the lungs and energized consumers.

We have worked for three years among the Mixtec Indian community at Madera, in the San Joaquin Valley north of Fresno. The Mixtec community, there, has cultural origins in Oaxaca, therefore, we are examining the maintenance or abandonment of chocolate-related traditions after immigration to the United States. In Madera, chocolate is consumed three ways: as *champurado* (a mixture of chocolate, maize-flour, and boiling water); as hot chocolate prepared with water or with milk, or as a *mole* sauce – a chocolate sauce commonly associated with festive chicken dishes. Traditional Oaxacan recipes for chocolate that consist of cacao, sugar, cinnamon, and almonds, are not produced in Madera due to lack of culinary equipment. Respondents claim that chocolate is healthy: a blend of chocolate and fresh beaten eggs added to hot water is used to combat fatigue; chocolate added to *manzanilla* tea is used to counter pain; chocolate mixed with cinnamon and the herb *ruda* (rue) alleviates stomach ache; and the Mixtec living in Madera reported to us that eating and drinking chocolate is believed to lower high blood pressure, alternatively it can be used to raise low blood pressure, and also to alleviate symptoms of the common cold.

Finally, chocolate is unique because it sings: think how chocolate sings as it melts slowly on your tongue. As you taste the flavor of chocolate, listen carefully: the songs you hear are from the planters, the farmers, the harvesters, and the *chocolateros*, even ancient kings – and the words of these songs still ring out across the ages, and I end today with a song of chocolate written and sung by the Aztec King of Tescoco, king Netzahualcoyotl ... as he speaks to his son, the young Yoyontzin:

In my solitude I sing to he that is my god.
In the place of light and warmth, in the place of this
World, the flowery cacao is frothy,
The drink that intoxicates with flowers.
I have a great desire, I taste it in my heart,
In truth, my heart can taste it.
Stand up . . . my friends, stand up!
The Princes are forsaken,
I am Netzahualcoyotl,
I am the singer,
I am the parrot with the green head.
Take your flowers and your fan,
Take them and go to dance!
You are my son,
You are Yoyontzin,
Take your cacao,

The flower of cacao.
Make it a drink!
Go and dance, and start the language of the chants!

Thank you.