

ARCHAEOLOGY

Chocolate's Deep History in Latin America

By Rosemary Joyce

As he enjoyed his morning cup of chocolate in the novels of Agatha Christie, the Belgian detective Hercule Poirot followed a long European tradition that associated drinking beverages made from cocoa with luxury. In the late 17th century, the wealthy and powerful of London visited new chocolate houses to argue about politics. In France, consumption by the nobility made chocolate drinking a mark of elegant living in the 17th and 18th centuries. Chocolate cups and pots continued to appear in paintings by artists including Pierre-Auguste Renoir, Mary Cassatt, and Henri Matisse as signs of luxury through to the turn of the 20th century. These powerful, wealthy Europeans were following in unlikely footsteps, adopting a practice of Indigenous rulers of states that thrived centuries earlier in what is today Mexico and Guatemala.

At noon every Tuesday in Spring 2021, I met virtually with a group of Berkeley undergraduates taking the

elective sophomore seminar “Chocolate: History, Culture, Science.” Over the course of the semester, we traced the journey of chocolate from its original botanical roots in Latin America to the place it holds in the global economy today, generating more than \$100 billion in retail sales. I hoped students would gain an understanding of the history of human engagement with *Theobroma cacao*, the plant that is the source of chocolate, from its origins in Indigenous uses, to those that continue today in countries like Mexico, Guatemala, Belize, El Salvador, and Honduras.

I also wanted to share my own research on the early history of cacao in Honduras. Studying the way cacao emerged from its Latin American home and reached around the globe illustrates the power of transdisciplinary research grounded in curiosity about a single world region. It shows that in order to understand the history of Mexico, Central America, and South America, researchers have

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Painted tiles show scenes of chocolate drinking in Spain in the early 18th century.



Photo courtesy of the Collection of the Museo de Cerámica de Barcelona, Museo del Disseny de Barcelona.

A farmer holds dried cacao beans ready for the market.
(Photo courtesy of USAID_IMAGES.)

to adopt the kind of broad geographic scope that crosses modern national boundaries — especially when the story in which we are interested began prior to 3000 BCE and extended from the Amazon to north of the Rio Grande.

My own interest in cacao comes from more than 30 years of research in Caribbean coastal Honduras. I came to Honduras originally as an undergraduate doing what I thought was a single field school in Central America, before pursuing a doctoral degree I believed would concern the archaeology of European settlements in North America. What started as an eight-week summer study grew into a life-long commitment to research in Honduras. My work is dedicated to understanding the complexity of histories from the earliest villages that we can detect, inhabited more than 1,500 years before the common era, to the end of Spanish colonial administration and transition to self-governing republic in the 19th century.

And chocolate — or more precisely, cacao — is central in that history. Understanding why requires mobilizing knowledge from the natural sciences, social sciences, and humanities.

The Caribbean coastal area near the modern city of San Pedro Sula, where my research is focused, is a geographic landscape composed of high mountains bordering a

vast tropical plain created by the intertwined Ulúa and Chamelecón Rivers. This river valley, which extends over 2,400 square kilometers (927 square miles), became the site of banana plantations in the late 19th and early 20th centuries. The same features that made this environment hospitable for bananas are likewise beneficial for the source of chocolate: *Theobroma cacao*.

This evergreen tree requires shaded, warm, humid environments to stretch its well-watered roots. Cacao plants put out their blossoms — as small as a fingernail — directly from the wood of the trunk and branches. If pollinated by small flying insects, these blossoms grow to become cacao pods, which resemble acorn squashes in size and shape. Inside the pods, a delicately flavored, moisture-rich white pulp surrounds light-brown seeds the size of almonds, which are the ultimate source of chocolate.

My research explores the effects of the Ulúa River valley and floodplains becoming a significant source of cacao for Indigenous societies in the 16th century. Spanish colonial documents recorded that the Ulúa region was recognized as an important center of cacao cultivation by both Mexica (Aztec) and Maya societies. People from Maya cities in the Yucatán peninsula traveled to the Ulúa Valley to trade for these seeds. Authorities in one

The flower and fruit of the cacao plant (*Theobroma cacao*).



Photo by bartolomeomgica

of the cities on the edge of the territory controlled by the Mexica shared maps with Hernán Cortés, leader of Spain's campaign to colonize Mexica territory. This map showed the overland routes to Honduras.

The first field research with which I was involved as an undergraduate in Honduras included excavations at a place called Naco, where affiliates and competitors of Cortés stayed as guests of one of the powerful local families in the 1520s. That experience shaped my understanding of Honduran archaeology. Years later, a Berkeley doctoral student I advised, Kira Blaisdell-Sloan, conducted excavations on an ancient course of the Ulúa River, which had been re-occupied by the modern Chamelecón River. In the 16th century, the site where she worked was the location of a town recorded as Ticamaya. Ticamaya was the center of resistance to the Spanish invasion in the Ulúa region and was led by a person referred to in Spanish sources as Çocamba (sometimes spelled Çisumba, Çocumba, or even Soamba). Çocamba was, these sources said, “a great merchant in cacao.” When the campaign to resist the Spanish ended, Ticamaya was ordered to provide tribute to the local colonial authorities in seeds of cacao.

The use of cacao seeds, an organic product, as an economic standard of value in Mexico and northern Central America

has long fascinated researchers. Descriptions of the early colonial marketplace in Tenochtitlán — the capital city of the Mexica state, taken over as the center for the colonial administration of New Spain, and today, the historic center of Mexico City — describe cacao seeds being used as currency in buying and selling goods. Early colonial reports also suggest the circulation of counterfeit cacao seeds at that time. Anthropologist René Millon even titled his 1955 doctoral study of the plant “When Money Grew on Trees.” While descriptions of market exchange in Tenochtitlán offer accounts of a new hybrid colonial economic institution, this market system was built on the previous importance of cacao seeds as a fundamental medium for tribute payment. Demanded by political overlords from the communities that acknowledged their dependency, packs of cacao seeds were depicted in painted images created by



Photo courtesy of Russell Sheptak

Pottery shows a woman carrying a vessel filled with liquid as part of a ceremony. Ulua Valley, ca. 700-800 CE, from the Museo de San Pedro Sula.

Indigenous artists for the administrators of New Spain. Centuries before, painted scenes from the city-states of the Classic Maya featured cacao-seed tribute payments.

Caribbean coastal Honduras was one of the areas where large-scale cultivation of cacao plants was especially productive. Similar zones provided this important commodity to places outside the ideal environments for the plant to grow and thrive. Paying tribute in this Indigenous resource had ended in most towns in Honduras by the mid-17th century. Yet raising cacao for local use continued to be important to Ulúa Valley Indigenous towns well into the 18th century. Anthropologist and Berkeley Research Associate Russell Sheptak notes that when raids from coastal marauders endangered these towns, one of the main arguments residents used in seeking help from colonial authorities was that the loss of cacao groves endangered the survival of everyone.

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Sheptak and I examine the concerns about destruction of cacao groves expressed by colonial Ulúa residents, and we relate them to the Indigenous philosophies of the Lenca who live inland today. Sheptak identifies one of the languages of the colonial Ulúa Valley, probably spoken by the great merchant Çocamba, as a Lenca language, which fell into disuse as colonial townfolk developed fluency in Spanish. Today, Lenca people are at the forefront of fighting environmental damage from hydroelectric projects involving damming rivers and multinational mining companies operating in central and southern Honduras.

For traditional Lenca today, cacao plays an important role in *pagos a la tierra* (payments to the Earth), which are also called *composturas*, meaning “arrangements” or “repairs.” These ceremonial meals are held for the animating spirits of plants, animals, and other non-human beings on which humans depend for subsistence and survival. Sheptak argues that when the Indigenous leaders of Jetegua, an Ulúa Valley town, wrote in 1679 that without cacao “the Earth will suffer,” they were warning of the damage to the reciprocal relationship with animate forces that sustained these communities.

When I began the fieldwork in Honduras that led to my doctoral dissertation, I was unaware of this history and not yet informed, as I am today, by the Indigenous knowledge that these ancestral Ulúa residents expressed. What I knew was that the Ulúa Valley occupied an important place in the economy of the region at the time when it was first described in European documents. I wanted to understand how far back in time this role in the regional economy went.

Initially, my interest in possibly tracing earlier histories of cacao use in Honduras was frustrated. While the people of the Ulúa Valley produced narrative artworks depicting humans and beings with both animal and human features engaged in a wide range of activities, including consuming beverages, they did not use a system of writing — as their Maya neighbors did — to label the specific contents of jars and bowls shown in ceremonies. I turned to studies of traditional methods of processing cacao seeds for ideas about what evidence I might find through excavation and learned that the tools that might have survived were multifunctional, like *metates*. These stone grinding platforms were (and still are) used for grinding corn or cacao, interchangeably. Other steps in traditional cacao processing employ materials like wooden containers that would not be preserved in the tropical forest environment of the Ulúa Valley. I could suspect that at least some of the ceramic



Photo by Jeanine Lopiparo.

vessels I studied once contained cacao, but at the time, I had no way to confirm my hypothesis.

Nonetheless, I suggested that my doctoral dissertation site, Cerro Palenque, had been part of a network for long-distance cacao trade. Cerro Palenque was the single-largest settlement known from the Ulúa Valley. It was a product of very rapid growth and witnessed equally rapid decline. Cerro Palenque reached its height during the 9th and 10th centuries of the Common Era, just as the Maya city-states in Guatemala, Mexico, and Belize were undergoing political disruption, abandonment, or population loss. I argued that during this time, the Ulúa people established their position as a reliable source of cacao for the city-states that emerged following the so-called Classic Maya collapse. From this historical transition, a later network of settlements emerged that included Maya towns recorded as sending traders to the Ulúa Valley in the 16th century.

Julia Hendon leads excavations at Cerro Palenque, Honduras, in 2002.

People continued to inhabit villages along the Ulúa River following the decline of Cerro Palenque, after 1100 CE. The names of many riverbank towns were recorded in a Spanish document from 1536, which described grants of colonial demands for labor and tribute to Spanish participants in wars with Ulúa people. Among those 16th-century towns was one located at the base of the hill (*cerro*) that gives the Cerro Palenque site the first part of its name. Today known as Santiago, in the 16th century, the full name of the town was Santiago Çocumba, a clear association with the family of the “great merchant in cacao” whose defeat initiated Spanish control. The Honduran historian Rodolfo Pastor Fasquelle suggests that we consider the possibility that *palenque* in the name Cerro Palenque, which translates to “Hill of the Palisade,” might be a preserved reference to this later riverbank town as one of the places that Çocamba fortified against Spanish attack.

By the time I published my book, *Cerro Palenque*, in 1991, I was satisfied that the combination of historical and archaeological research had at least plausibly pushed the history of cacao in Honduras back to 800 CE, recognizing it as a driving force in the growth of Cerro Palenque. A revolution in research was yet to come that would enable scholars to add almost 2,000 years to the history of cacao use in the Ulúa Valley. That revolution emerged from new transdisciplinary approaches that allow researchers to identify the presence of plants in the genus *Theobroma* through previously undetectable residues left behind on tools used to process the plant and serve foods based on it.

Understanding chocolate is a good example of the way transdisciplinary research works: the efforts of people from many different fields are required to understand a given focus, in this case, a plant that transformed global history. We could begin with the botanists and plant geneticists who have done the research needed to identify the relationships of plants in the genus *Theobroma*: *T. cacao* and *T. bicolor*, a second species used in Central America, often called *pataxte*. They point us to northern South America, where related uncultivated plants are used by local people. We can add the chemists who study the active substances found in plants in the genus *Theobroma*, including caffeine and a distinctive compound called theobromine. Chemists and medicinal researchers have probed the effects of cacao on human biology, tracing potential already evident in Indigenous medical uses. Traditional Indigenous uses in food, medicine, and religious life are documented by researchers from the specialized field of ethnobotany, an interdiscipline that bridges anthropology and botany.

Even with all of this, we have hardly begun to explore the social lives of this plant. Archaeologists and art historians trace cacao in depictions of the plant and sharing of cacao-based foods in pre-Hispanic art from Mexico and northern Central America. Work by documentary historians like Marcy Norton, in her 2008 book *Sacred Gifts, Profane Pleasures* (based on her 2000 UC Berkeley doctoral dissertation in History), trace the transmission of cacao from Mesoamerica to other parts of the world. Economists, political scientists, anthropologists and geographers assess the effects that followed when this introduced plant became the center of agricultural economies from West Africa to Indonesia. Environmental studies expose the negative consequences of cultivation of this plant today, while researchers from social science and policy disciplines examine the troubling role of child labor in cacao cultivation as a cost of the taste for chocolate.

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Testing on this potsherd was positive for theobromine. Puerto Escondido, ca. 1100-900 BCE.

Photo courtesy of John S. Henderson.

water and other plant-based condiments (chile, vanilla, and flowers), and eaten. While paleoethnobotanists — specialists in the interdisciplinary study of ancient plants — can detect some plants by the distinctive silica structures they form (phytoliths) or by their pollen, early attempts at this kind of research on cacao were inconclusive.

Faced with this challenge, Hall reached out to scientists at the Hershey Company, the U.S. chocolate manufacturer. Jeffrey Hurst, a chemist with the company, had a suggestion: plants in the genus *Theobroma* produced a distinctive chemical, theobromine. In Mexico and Central America, they were the only plants known to produce this compound. If theobromine was preserved in the residues from the Maya pots from Guatemala, a relatively simple chemical technique should be able to detect it.

The experiment worked. It ushered in a continuing effort by researchers to delineate where plants yielding theobromine were used in the past. Yet, we were still unable to test samples from Ulúa Valley sites. The original procedure was based on retrieving samples from complete pots. For much of their history, residents of the sites along the Ulúa River did not bury complete vessels. We only had broken bits.

The Ulúa Valley is recognized in this transdisciplinary research as one of the early sites of confirmed cultivation and use of cacao, a significant point in the adoption of cacao before 1000 BCE. The revision of our understanding of cacao's history in Honduras was already underway when I published my study of Cerro Palenque in 1991. In the decade following my doctoral research, archaeologists working in Guatemala carefully collected visible residues from ceramic vessels in a tomb at a site called Río Azul. One of these vessels had a painted text that was newly deciphered as labeling it a container for cacao. The archaeology doctoral student who collected these samples, Grant Hall, asked the key question: is there a way to identify remains of cacao in these residues?

Up to that moment, attempts to identify physical traces of the cacao plant were mostly unsuccessful. To produce edible cacao in the traditional way, the pulp and seeds are scooped out and fermented until the pulp breaks down (leaving a watery substance that is discarded). The seeds, desiccated by their alcohol bath, are ground, mixed with

The picture changed with work I co-directed in Honduras with anthropologist John Henderson of Cornell University starting in 1994. Our plan was to explore households from the period between 500 and 1000 CE in a site being bulldozed for construction: Puerto Escondido, near the city of San Pedro Sula. We made an unexpected discovery: these houses were built atop the buried remains of a much earlier village, occupied before 1500 BCE. Elsewhere in the valley, early stages of residence were deeply buried, but at the Puerto Escondido site, the bulldozers had removed 600 years of deposits, allowing us to reach previously unsuspected early phases of the settlement. These early villagers were wealthy, part of a cosmopolitan network extending from Olmec towns on Mexico's Gulf Coast to Honduras. We proposed that the history of cacao cultivation that made the Ulúa Valley important might have begun earlier than originally thought, explaining these long-distance connections.

Our research caught the attention of another chemist, Patrick McGovern, who specialized in

analyzing archaeological materials. He was willing to test for residues using potsherds. When his results came back, we were all startled: even fragments of pottery sent as controls, which we had not expected to contain theobromine, proved positive.

This finding led us to push early use of cacao to before 1150 BCE, almost 400 years earlier than previous studies. Testing by other researchers expanded and consistently found cacao residues in sites dating before 1000 BCE. In 2010, Henderson and I wrote that the only obstacle to identifying even earlier cacao use was that researchers couldn't test vessels from periods before pottery was made. These perishable containers were likely made of the kinds of gourds mimicked by early pottery. Researchers, we argued, should assume cacao use was earlier than we could confirm.

We could not have predicted what came next. In 2018, an interdisciplinary research team led by archaeologist Sonia Zarrillo, with participants from Ecuador, Canada, and France, as well as U.S. institutions including UC Davis, detected residues of cacao consumption and genetic traces of cultivated *Theobroma* genus plants in an ancient

village in Ecuador dating to 5,300 years ago! Ancient DNA, theobromine, and newly identifiable starch grains specific to *Theobroma* all were detected. After decades of research, the chocolate research agenda has shown that one of the most widely repeated assertions, that cacao cultivation started in Mexico or adjacent Central America, must be revised. Cacao now begins the next stage of its story: linking the early history of South America with that of Central America and Mexico.

It all comes back to chocolate: sacred gift, profane pleasure, and fascinating object of Latin American research.

Rosemary A. Joyce is Professor of Anthropology at UC Berkeley. She conducted archaeological fieldwork in Honduras from 1977 to 2009 and continues research on Honduran collections in museums throughout Europe and the Americas. Professor Joyce served as the Interim Chair for CLAS, January-June 2021.

References for this article are online at clas.berkeley.edu.

