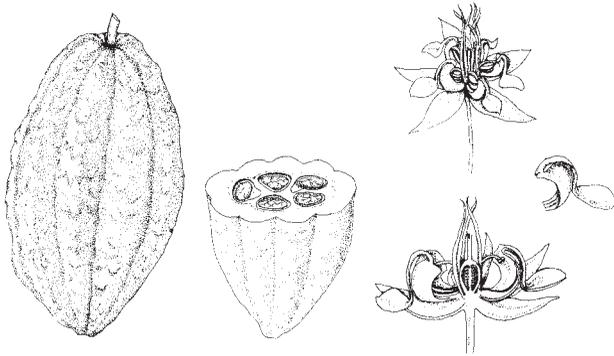


Chocolate in Mesoamerica

A Cultural History of Cacao

Edited by Cameron L. McNeil

FOREWORD BY DIANE Z. CHASE AND ARLEN F. CHASE



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Title page image: Theobroma cacao. Cut fruit showing five seeds, flower, sectioned flower, and one petal. Drawing by Samantha Tsistinas.

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Brewing Distinction

The Development of Cacao Beverages in Formative Mesoamerica

John S. Henderson and Rosemary A. Joyce

The fact that no pre-Columbian inhabitant of South America used *T. cacao* for anything beyond manufacturing a wine from the white pulp surrounding the seeds, and using the same pulp as a nibble, would seem a convincing argument against a South American origin and subsequent transportation to Mesoamerica (S. D. Coe and M. D. Coe 1996:26).

In making this statement in their authoritative social history of cacao, Sophie and Michael Coe made an assumption shared by generations of scholars interested in the economic and ritual significance of cacao in pre-Hispanic Mesoamerica, ourselves included. This assumption was that cacao was originally cultivated for the purpose of producing the kind of drink described in the sixteenth century, made by fermenting the cacao seeds, drying them, optionally toasting them, grinding them, and mixing them with water in a thick, bitter suspension. But what if this use of *Theobroma* did not provide the original impetus for the cultivation and domestication of *Theobroma cacao* L.? What if, instead, the original cultivators—whether in Central or South America—used the wild relatives of *T. cacao* in ways analogous to those ethnographically documented for other members of the genus—for the pulp, eaten fresh or fermented to form a beverage, cacao *chicha*, or chocolate beer?

Our suggestion that this possibility be considered is based on a number of lines of argument, which will be sketched out briefly below. Fundamentally, however, it rests on a concern to avoid arguing teleologically. The complexity of the steps involved in producing the familiar chocolate beverage, if taken as the goal of the cultivation of *T. cacao*, invokes *a posteriori* logic. The original cultivators of the plant should have seen advantages to it that did not require

the wholesale invention of a sequence of processing. Instead, this production process should be open to modeling as an outcome of likely actions of early plant cultivators, elaborated over time into the form we take as normative today. When we hold ourselves to this requirement, the fact that stands out in the production process of chocolate (the term we will use for the beverage highlighting ground cacao seeds, familiar to all Mesoamericanists, and taken as the norm by S. D. Coe and M. D. Coe [1996]) is that it begins with fermentation and produces precisely the product rejected as evidence for connections between South and Central American practices related to *Theobroma*: a fermented, alcoholic beverage (which we will call cacao *chicha*). Accepting that cacao may originally have been one among a wider range of plants used to produce fermented beverages, we then propose a rationale—admittedly speculative, but consistent with later Mesoamerican practices—for the conversion of interest in cacao beverages from their intoxicating properties to the potential they provided for the performance of serving.

Several authors (Blake and Clark 1999; Clark and Blake 1994; Clark and Gosser 1995; Hill and Clark 2001; Hoopes 1995) have suggested that presentation of drinks, particularly fermented beverages, in elaborately decorated containers was an important strategy employed by “aggrandizers” in early Central American societies. These authors all propose that drinking was one of the activities that could legitimately be sponsored in non-hierarchical societies to create forms of social debt, binding people in asymmetric social relations. We have previously proposed that in the recently documented early villages of Caribbean coastal Honduras, similar social events might have involved early use of cacao (Henderson and Joyce 2001), a product critical in the later history of the region and still cultivated today.

The Ulua River Valley of Honduras (Figure 7.1) was among the major documented zones of cacao cultivation in the sixteenth century (Bergmann 1969). When the Spaniards invaded the region, the ruler of Chetumal, some 200 miles distant up the coast of Yucatan, so valued his interests in Ulua cacao plantations that he sent a fleet of war canoes commanded by Gonzalo Guerrero to defend the valley against the newcomers (Henderson 1979). To date, archaeological evidence for earlier cultivation of cacao in the region has been indirect, consisting of modeled cacao pods that formed ornaments on Classic period cache vessels and figurines made and recovered in the valley (Figure 7.2; compare D. Stone 1984). Production of cacao beverages involving frothing of cacao suspension may date to the early Middle Formative, when spouted bottles with flaring necks were produced, including those Terry Powis identified as containing cacao in Belize (Powis et al. 2002).¹ The dates of such vessels in the Ulua Valley



Figure 7.1. Map showing location of lower Ulua River Valley, Honduras. Map by John S. Henderson.



Figure 7.2. Ceramic figurine of a monkey holding a cacao pod. Classic period. Ulua Valley, Honduras. Photograph courtesy of Peabody Museum, Harvard University (Photo 45-13-20/15068 N17851).

(ca. 1000–700 B.C.) appear to be the earliest reported (Powis et al. 2002:88), suggesting that the Ulua Valley may have been an early locale for production of standard Mesoamerican chocolate.

The Many Forms of Drinking Cacao

Theobroma pentagona, *T. leiocarpa*, and *T. grandiflorum*, wild relatives of cacao, are prized in northern South America for the sweet pulp that surrounds the seeds (A. M. Young 1994:3; see Bletter and Daly, this volume). South American use of the pods included the production of a drink from the fermented pulp (A. M. Young 1994:14–15). These indigenous South American practices suggest a potential route toward the elaborate processing of cacao seeds required for their consumption in the Mesoamerican fashion as chocolate, since the first step in that process is fermenting the contents of cacao pods. This indigenous tradition of production of cacao *chicha* also provides a precedent, otherwise lacking in the ethnographic accounts of use of the genus, for consuming cacao as a beverage.

The South American pattern of using members of the genus for their pulp is commonly practiced as far north as Nicaragua, where *T. bicolor* has long been used to make *pinolillo*, while people southward used the fresh pulp to make “a refreshing, frothy beverage with a citrus-like flavor” (A. M. Young 1994:15). A close relative of the *Theobroma* genus, *Herrania purpurea* (formerly *Theobroma purpurea*), was used by the Bri Bri of Costa Rica to produce a more bitter drink (P. H. Allen 1956:112, 221–222). In South America, the Andaki allowed the pulp of *Theobroma* to ferment, producing an alcoholic drink (Friede 1953). Bletter and Daly (this volume) document use of *Theobroma* spp. in fermented drinks in Panama, Venezuela, and French Guiana.

There are good grounds for thinking that even during the period when cacao was consumed as nonalcoholic chocolate in Mesoamerica, an intoxicating cacao beverage was also produced there, as it still is today. Recent research by Cameron McNeil (Chapter 17, this volume) confirms that contemporary Highland Maya people occasionally make fermented beverages from cacao pulp. Inscriptions on Classic Maya polychrome vases include references to *k'ab kakaw*, literally honey-cacao, described as “a possibly fermented cacao juice using honey” (Reents-Budet 1994c:75). The cacao foods recorded on Classic Maya polychrome pots include records of “tree-fresh” cacao, thought to be a reference to the pulp (B. MacLeod and D. Reents-Budet 1994:115–119), which is the material central to the production of fermented cacao drinks.

But the strongest evidence for use of fermented cacao beverages comes from the Late Postclassic Mexica (Aztecs), as recorded in the work of Bernardino de Sahagún (1950–82). The Nahuatl-speaking informants, describing the food consumed by the lords of Tenochtitlan, the Mexica capital, enumerated a wide range of cacao beverages, including some that recall the “tree fresh” cacao of the Classic Maya and the honey-cacao identified as possibly a fermented drink:

Then, in his house, the ruler was served his chocolate, with which he finished [his repast]—green, made up of tender cacao; honeyed chocolate made with ground up dried flowers—with green vanilla pods; bright red chocolate; orange-colored chocolate; black chocolate; white chocolate. (Sahagún 1950–82, Book 8, Chapter 13, 1954:39).

A fermented beverage produced from members of the genus *Theobroma* apparently exhibits a distinctive taste when contrasted with other fermented beverages. The adjective that comes up repeatedly in descriptions of cacao pulp beverages is “refreshing,” a term also applied to the unfermented pulp itself. The “tree-fresh cacao” of the Classic Maya is intriguingly echoed in the botanical description provided to Sahagún of a form of cacao that is clearly described as an intoxicating beverage:

[Green cacao] makes one drunk, takes effect on one, makes one dizzy, confuses one, makes one sick, deranges one. When an ordinary amount is drunk, it gladdens one, refreshes one, consoles one, invigorates one. Thus it is said: ‘I take cacao. I wet my lips. I refresh myself.’ (Sahagún 1950–82, Book 11, Chapter 6, 1963:119–120)

The description is clearly of a fermented beverage and suggests that the “green cacao” described as one of the beverages served to the ruler may also have been intoxicating. The word translated as “green” here is *xoxouhqui*, which means green in color but also means unripe and potentially sour (in reference to fruit trees, the main subject of this section of the text; Susan Gillespie, personal communication 2002). The Spanish gloss on the Nahuatl text attributes the intoxicating character of “green cacao” to being “new,” writing “Cuando es nuevo, si se bebe mucho emborracha, y si se bebe templadamente refrigera y refresca” [“When it is new, if one drinks much one becomes drunk, and if one drinks temperately it cools and refreshes”]. The Spanish text directly substitutes “nuevo,” “new,” for the Nahuatl text’s “green/immature/sour.”

The only way a person would become intoxicated on new cacao would be by drinking the liquid of fermentation, which is otherwise a waste product of the production of seeds to be dried for later preparation as standard Mesoamerican chocolate. The product of fermentation is a clear liquid (unlike the dense sus-

pension of ground cacao) that is lighter in color than chocolate. References to “fresh” cacao could mark the distinction between the primary fermented beverage and the secondary, unfermented chocolate. The fermented beverage would have to be consumed new, or fresh, as soon as it was produced, since it would continue to ferment and get sour. Rather than a characterization of drinking immoderately or in moderation, the passage from Sahagún’s Florentine Codex may better be read as distinguishing two forms of cacao beverage, requiring different drinking approaches.

This passage surely demonstrates that among the forms of cacao consumption in the sixteenth century, there was at least one means of drinking cacao as a fermented, intoxicating beverage. It is impossible to produce the conventional form of chocolate without producing a fermented cacao drink as one stage in the process.

Brewing Cacao *Chicha*

The quality highlighted in the Nahuatl text, and perhaps also in Classic Maya texts, is freshness versus sourness, a register of taste relevant for fermented drinks in a way it is not relevant to what we know today as chocolate. As A. M. Young (1994:74–79) describes the conventional production process, seeds and pulp are placed in a vessel (often a wooden box or even a canoe; personal observation, Henderson and Joyce) and left to ferment for several days. The conversion of the pulp to alcohol accompanies changes in polyphenols in the seeds, cutting the bitterness of the seeds and turning them a lovely pale violet. Significantly, A. M. Young (1994:74) notes that the Mesoamerican-selected “*criollo*-derived cacao seeds require less time to ferment than *forastero* seeds,” the South American cultivar. This implies that the conversion of seeds to a form acceptable for Mesoamerican use could take place early in the fermentation process. This is important because after the available sugars in the seeds and pulp are converted into alcohol, a second stage of fermentation starts, which converts alcohol to acetic acid. In order to recoup drinkable cacao *chicha*, fermentation could not be allowed to continue too long, or the product would be effectively undrinkable, cacao vinegar.

The final development of the chocolate flavor of the seeds is accompanied by a change in color from purple to brown and shrinkage of the fermented seeds. The fermented seeds must be completely dried (Figure 7.3) to prevent the growth of mold, still a problem in contemporary chocolate production (Robert Steinberg, personal communication 2001). The degree of fermentation accomplished before the beans are dried can be quite varied.

The sequence of processes that result in the fermented seeds that fuel the



Figure 7.3. Cacao seeds drying in the northern Ulua Valley, Honduras, in 1982. Photograph courtesy of Kevin O. Pope.

modern chocolate industry cannot have been developed solely for the purpose of inducing the changes that make cacao seeds suitable for chocolate production. But they could easily have developed from an initial desire to produce a lightly fermented beverage from cacao pulp. We suggest that it is possible that in Mesoamerica the original use of cacao was as a form of *chicha*. Bitter chocolate is an acquired taste, with relatively subtle stimulant effects and none of the attraction of intoxicants that Hoopes (1995) persuasively argues contributed to the effectiveness of feasts in early Central American societies.

From this perspective, cacao seeds were a by-product, and their conversion to a tasty food was an unanticipated side effect of the primary fermentation of cacao pulp, perhaps more effective because of the characteristics of *criollo* cacao. A. M. Young (1994:11) suggests, based on ethnographic observations in Central America, that the seeds of plants in the genus might have been important sources of dietary fat. Bletter and Daly (this volume) document examples of cultivation of *T. bicolor* and relatives for seeds, eaten toasted, in a number of Colombian and Ecuadorian societies. We suggest that cacao seeds, a by-product of alcohol production, would have been appreciated in early Mesoamerica just as palm seeds were, for their rich fat. Ground seeds could have been added to cacao as a condiment at the time of service. The use of ground *sapote* seeds (most likely *Pouteria sapota*) as a condiment in cacao beverages has been described ethnographically among the Lacandon, making it clear that

adding ground seeds to cacao is as much a part of the process as the more widely studied step of adding flowers (S. D. Coe and M. D. Coe 1996:61–66; compare Gillespie and MacVean 2002; Reents-Budet 1994c:75–79). Because of the glue-like texture of the pulp, it would have been impossible to separate cacao seeds from the pulp in advance of fermentation. Strained out of the fermented liquid, they need only have been tested for taste by food processors already accustomed to drying, toasting, and grinding seeds—practices that probably can be traced to the Mesoamerican Archaic period (ca. 8000–2000 B.C.).

Serving Cacao as Social Performance

Although most of the equipment used in processing cacao in traditional Mesoamerican style is perishable, pottery vessels do provide a possibility for tracing patterns of food serving specific to the cacao complex (see Hurst, this volume). Transport of cacao beans presumably involved soft, perishable containers. Processing of cacao pods involved equally perishable wooden troughs. It is only at the stage of preparation and consumption that specialized paraphernalia in imperishable materials, specifically grinding stones and serving vessels, were employed.

As described in the sixteenth century, the presentation of cacao required the use of specialized vessels for preparation and serving. Sahagún recorded the following description of the vessels used to serve cacao to the rulers of Tenochtitlan:

The chocolate was served in a painted gourd vessel, with a stopper also painted with a design, and [having] a beater; or in a painted gourd, smoky [in color], from neighboring lands, with a gourd stopper, and a jar rest of ocelot skin or of cured leather. In a small net were kept the earthen jars, the strainer with which was purified the chocolate, a large, earthen jar for making the chocolate, a large painted gourd vessel in which the hands were washed, richly designed drinking vessels; [there were] large food baskets, sauce dishes, polished dishes, and wooden dishes (Sahagún 1950–82, Book 8, 1954:40).

Postclassic period (A.D. 1000–1521) vessels illustrated in the Central Mexican Codex Nuttall (1975) (Figure 7.4) would have facilitated frothing of the cacao, a crucial step required to force the chocolate sediment into suspension, enclosing the liquid within a restricted body with a flaring neck that contained the developing foam. The fundamental requirement for drinking chocolate as normally described in late periods in Mesoamerica appears to have been some form of drinking cup and some way to raise a froth on the cacao suspension (Figure 7.5).



Figure 7.4. A woman seated on a jaguar-skin throne in front of a palace (right) passes a vessel containing frothed cacao to the Mixtec Lord 8 Deer Jaguar Claw, also seated on a jaguar-skin throne (left). Note the constricted neck of the vessel. Codex Nuttall 1975 [1902]:26.



Figure 7.5. Early Colonial drawing of a Mexica woman frothing cacao by pouring it from a vase into cups. Illustration from the Florentine Codex (Sagahún 1950–82, Book 10, 1963:ill. 144a).

Bottles that are part of the earliest ceramic complexes of the lower Ulua Valley region have tall narrow necks (Figure 7.6) and seem ill-suited to this specific process of Mesoamerican cacao consumption (Healy 1974; Joyce and Henderson 2001). Vessel forms similar to those in the Codex Nuttall are not found until the advent of Middle Formative ceramic complexes, including that associated with the Ulua Valley archaeological site Playa de los Muertos (Kennedy 1981; D. Popenoe 1934). In these complexes, for which we have obtained consistent radiocarbon dates ca. 900–700 B.C. (Hendon and Joyce 1993; Joyce 1992; Joyce and Henderson 2001), new bottle forms develop. These feature both a narrow spout and a flaring neck (Figure 7.7). They would have allowed frothing of cacao by pouring from one vessel to another. We note with interest the report by Powis, Valdez, Hester, Hurst, and Tarka (2002) of the identification of chemical signatures of *Theobroma* in similar vessels dating to ca. 600 B.C. in Belize.

The suite of decorated vessel forms shared by complexes in the earlier Formative Ulua Valley (Joyce and Henderson 2001) and Soconusco (Blake and



Figure 7.6. Early Formative bottle. Barraca Brown Burnished type, Cusuco ceramic complex, Ocotillo phase, 1100–900 B.C. Honduras. Collection of the Instituto Hondureño de Antropología e Historia, Museo de San Pedro Sula, Honduras. Drawing by Yolanda Tovar.



Figure 7.7. Middle Formative bottle. Bodega Burnished type, Playa phase. Honduras. Collection of the Instituto Hondureño de Antropología e Historia, Museo de San Pedro Sula, Honduras. Photograph by John S. Henderson.

Clark 1999; Clark and Gosser 1995), both areas of probable production of cacao, includes forms appropriate for other required steps of cacao preparation, not including the last step of frothing. The small red-rimmed tecomates from Puerto Escondido would have been suitable for short-term storage of a small quantity of highly valuable consumables such as cacao beans and for transport of quantities of cacao beans sufficient for individual servings to a grinding platform. Ground cacao could have been mixed with water and other additives in pattern-burnished necked jars, whose size and formal characteristics are similar to jars shown in scenes involving presentation of cacao in Late Postclassic Central Mexican codices (see Figure 7.4). Cacao drinking would have required cups or small bowls (see, for example, Codex Nuttall 1975:30, lower right), like the pattern-burnished bowls that form the final component of the suite of vessels at Puerto Escondido.

We have proposed that drinking rituals that were the likely arena for the use of new, highly decorated pottery forms in early Mesoamerica would have been part of ceremonies entailed by social relationships contracted through marriage and fostering of children (Henderson and Joyce 2001; Joyce 1996b). The symbolic dimensions of cacao would have made it particularly appropriate to

these ceremonies. In later Mesoamerican societies for which we have data on social alliances, cacao was a primary object of exchanges between social groups, marking betrothal, marriage, and children's life cycle rituals (S. D. Coe and M. D. Coe 1996:61–65; Gillespie and Joyce 1997; Marcus 1992). In the *Codex Nuttall* (1975), scenes showing vessels containing a brown foamy beverage are found in contexts of marriage, betrothal, children's life-cycle rituals, funerary, and ancestor veneration ceremonies.

A similar range of social ceremonies has been documented for Formative period Mesoamerican societies. Figurines have been taken as evidence for age-graded rites of passage in a number of Formative period societies, including the Playa de los Muertos society of Middle Formative Honduras (Joyce 2001: Chapter 2; compare Cyphers 1993; Lesure 1997). Although material traces of marriage or betrothal ceremonies themselves have not been identified, Cyphers (1984) has noted the likely representation in sculpture of a marital alliance between Chalcatzingo, Mexico, and another locality. Burials, including secondary mortuary treatment, can be seen as the material residues of funerary rites in Formative period villages, including sites in Honduras (Joyce 1999).

In the context of such social ceremonies, hosts could create social debts by matching preparation of feasts to the presence of particular visitors. But for fermented beverages, the work of production would have been under way in advance of such ceremonial visits, so serving fermented drinks would not as effectively be credited to relations with particular visitors as would preparing feast foods to order for the visit. One way for hosts to create specific debt and honor specific visitors would be to transform the serving of drinks into a performance aimed at particular visitors. In the case of cacao, it is clear that it was common practice in later Mesoamerican societies to add condiments at the time of serving. The addition of ground cacao seeds to an alcoholic cacao beverage, of which they were a by-product, would have lent itself to such a performative distinction at the time of serving.

The processing of cacao seeds—grinding into a fine nut meal—could have taken place as a performance of preparing a feast food for specially honored guests, creating a higher level of distinction and consequently greater social debt. The performance dimension of serving chocolate, as described in later Mesoamerican sources, is remarkable. Adding ground cacao seeds to liquid and frothing it to make a suspension was, by necessity, a last-minute action, the one depicted in the famous Classic Maya polychrome vase showing cacao being poured out of a cylinder in a palace setting (see Reents-Budet, Figure 10.10, this volume). Ethnographic accounts of the formal grinding of cacao by Lacandon women, co-sponsors of ceremonies, involving the use of archaic stone tools, precisely capture the sense of grinding as performance that we suggest may

have been relevant in the early history of cacao (S. D. Coe and M. D. Coe 1996:65, citing Baer and Merrifield 1971:209–210). In this case, the ground cacao seeds are sometimes mixed into a fermented beverage—*balché*—echoing what we suggest may have been the original point of serving cacao in its early Mesoamerican history.

Implications for the Study of Ancient Cacao

The performance of cacao preparation was a means of formalizing hosting and marking the occasion of drinking as special. Ethnographic accounts of South American *chicha* drinking ceremonies (for example, Whitten 1986), in which the pots themselves—made to order and subsequently smashed—enhance the event, are a model for introducing performative actions, not strictly necessary, to increase the drama of the drinking event, making it more memorable and distinguishing one event from another. We suggest that as serving of cacao became increasingly formalized throughout the history of Mesoamerica, the emphasis shifted from the alcoholic nature of the medium to the performative preparation of a rare drink to mark a special event.

By developing a formal model for the use of cacao in early Mesoamerica that emphasizes the social setting for preparation and consumption, and that takes into account the actual vessel forms present in our excavations, we have been led to make a series of interlinked proposals. We suggest that cacao was most likely prepared originally as an alcoholic beverage, one among a suite of such drinks. This suggestion makes sense of the elaborate preparation sequence, is consistent with modern uses of wild relatives of cacao, and is supported by the description in sixteenth-century Nahuatl sources of a form of cacao that was intoxicating. The recovery of theobromine from necked bottles dating to the earliest periods of occupation at Puerto Escondido, Honduras, is consistent with the consumption of a cacao beverage that was not frothed.

Theobromine was also present in examples of typical spouted, wide-mouthed bottles that were developed slightly later, like those described from Belize, which would have facilitated frothing. Thus, between the Early and Middle Formative periods there was a shift in how cacao beverages were prepared and presented. We suggest that frothing cacao drinks and adding such condiments as flowers and ground seeds (including ground cacao seeds), must be seen as adding an element of performance to serving cacao that would have helped to underline publicly the social debt assumed by those to whom these beverages were served.

Like others interested in the social uses of cacao, we emphasize that over the long span of time during which cacao was used—now pushed a further seven-

hundred years earlier by our analyses—we should expect that historical change in social organization, cuisine, and politics would have led to changes in the ways cacao was prepared, presented, and consumed.

Note

1. The alternative term “Preclassic,” which is not used here, is specific to the archaeology of the Maya area, where it is defined as the development of Classic societies. The term “Formative” is used here instead because the research context for Puerto Escondido is the wider literature on early complexity in Mesoamerica. In this literature, concerning the Gulf Coast Olmec and related peoples, the time periods are referred to as Early and Middle Formative, and beginning and ending dates are different from those for the Preclassic period.