

# Cocoa

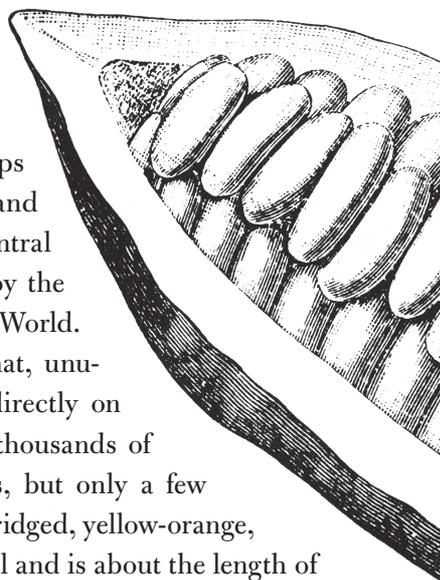
*Theobroma cacao* L.; Malvaceae

## FOOD OF THE GODS

In its home in Central America, cocoa was combined with water, maize and chillies to make a bitter drink associated with religious and regal rituals. In European hands it was transformed with milk and sugar to create a drink that was a status symbol: chocolate. It also gave Europeans their first introduction to caffeine.

Cocoa is one of a handful of crops (including maize, tomato, chilli and vanilla) originally domesticated in Central America and transported to Europe by the early Hispanic conquerors of the New World.

Cocoa is a small evergreen tree that, unusually, produces clusters of flowers directly on its trunk. Mature trees can produce thousands of small, pink, midge-pollinated flowers, but only a few ripen into fruit. Each fruit is a slightly ridged, yellow-orange, melon-shaped pod that has a hard shell and is about the length of a person's forearm. When ripe, the pods are packed with seeds (cocoa beans) surrounded by sweet, fleshy, white pulp. The cocoa beans are rich in fat, to provide energy for the germinating seed; as this quickly becomes rancid, cocoa seeds germinate soon after they are dispersed. Their fat, cocoa butter, is popular as a body lotion, but it is the alkaloids theobromine and caffeine in the beans, part of the plant's chemical defence system against insect and fungal

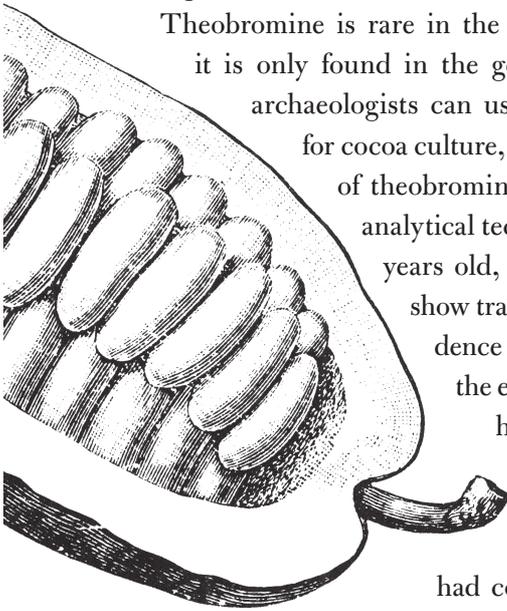


attack, which are the reason cocoa is so sought after worldwide.<sup>299</sup> They are what make chocolate so desirable.

There are about twenty species of cocoa tree, all native to the understoreys of humid tropical forests through Mesoamerica and northern South America, but only one is the source of commercial cocoa. Approximately ten pods are needed to produce 1 kg of raw cocoa.

Linnaeus christened the cocoa genus *Theobroma* or ‘food of the gods’, which was appropriate since one Aztec legend has the deity Quetzalcoatl being punished for giving the secret of cocoa cultivation to humans. Linnaeus chose not to use the common name used by earlier botanists for cocoa, *cacahuatl*, since he thought it ‘barbarous’.

Theobromine is rare in the plant kingdom: in Mesoamerica it is only found in the genus *Theobroma*. Consequently, archaeologists can use theobromine as a ‘fingerprint’ for cocoa culture, especially since minute quantities of theobromine can be detected using modern analytical techniques. Potsherds at least 3,500 years old, from a Mayan site in Honduras, show traces of theobromine, the oldest evidence for the use of cocoa. Furthermore, the evidence suggests these people may have been fermenting the fruit pulp to make beer.<sup>300</sup> Theobromine traces on New Mexican pottery suggest North American people had contact with Mesoamerican cocoa cultivators at least 500 years before the arrival of the Spanish.<sup>301</sup> The high value of cocoa in Mesoamerican cultures meant complex trade networks developed. For example, the Aztecs lived in areas unsuitable for cocoa cultivation but exacted tribute from surrounding nations in the form of cocoa beans and used



them as ‘coins’ in everyday transactions; money literally grew on trees. Mayans probably planted cocoa plantations near their homes, presumably having collected seeds from nearby forests.<sup>302</sup>

Genetic analyses of samples collected across the cocoa tree’s range show that the western Amazon, more specifically the Peruvian–Brazilian border, is likely to have been where humans first domesticated cocoa.<sup>303</sup> Researchers have speculated that initial domestication was for the sweet pulp surrounding the seeds, and that cultivating cocoa for the beans followed the plant’s transport to Central America.

When Columbus captured a Mayan trading canoe off the coast of Honduras in August 1502, the cocoa beans he found made little impression upon him. However, the Spanish conquistadors began to export cocoa beans to Spain soon after. Over the next two centuries, the popularity of cocoa gradually spread through Spanish society and across Europe, although early views of this new drink were mixed: ‘it seemed more a drink for pigs, than a drink for humanity ... the taste is somewhat bitter, it satisfies and refreshes the body, but does not inebriate’, wrote one sixteenth-century historian.<sup>304</sup> Western cultures were benefiting from two millennia of Mayan horticultural skills but, as the European chocolate market developed, supply could only be met by exploiting cheap labour – slaves; Mesoamerican Amerindians and Africans, and then, in the twentieth century, indentured labour. As with many consumer products produced in developing countries, the social and environmental ethics of cocoa production have become a twenty-first century issue for western chocolate lovers.

There are three main types of cocoa. The high-quality, low-yielding *criollo* types come from Central America, while high-yielding, hardy and vigorous *forastero* types come from the Amazon basin. The Trinidadian *trinitario* type is a hybrid between the *criollo* and *forastero* types and combines the characteristics of both parents. In the 1820s, the Portuguese transported *forastero*

seedlings from Brazil to West Africa, while other colonial powers hastened to establish trees in their own tropical possessions, the British in Ceylon (Sri Lanka) and the Dutch in Java. Today, 80 per cent of the world's cocoa production is from West African *forastero* types; hardiness has won over taste.

The manufacture of high-quality chocolate requires attention to detail. Cocoa beans must be harvested when the seeds contain maximum cocoa butter content and the pulp has maximum sugar content. This ensures optimal fermentation to convert chemicals in the seeds to the familiar chocolate flavours. The fermented beans are then dried, cleaned, roasted and ground to produce cocoa mass, which may be further processed into cocoa solids and cocoa butter. Manipulating proportions of cocoa solids, cocoa butter, milk and sugar produces different types and qualities of chocolate.

Nineteenth-century industrialists who made advances in the manufacture of chocolate are household names, including Nestlé and Hershey. In Britain, Quaker families, including Cadbury, Fry and Rowntree, were involved in chocolate manufacture by the 1760s. True to their convictions, these firms were seen as model employers, but by the end of the nineteenth century Quaker principles in chocolate manufacture had melted away. Industrialization democratized cocoa consumption, understanding cocoa chemistry helped create blocks of solid chocolate, while sophisticated advertising made chocolate something people craved. For some, a dispensable luxury had become an indispensable staple.

During its four-century transformation from divine drink to irresistible confection, cocoa has been invested with all manner of properties: mood changer and stimulant, improver of cardiovascular function, through to poison and cause of childhood obesity. It is unlikely to lose its status as one of the world's most tempting treats.