

# FROM BEAN TO BAR



## (AND INTO YOUR STOMACH)

by Elisa Parhad

The scientific name for a chocolate tree, *Theobroma cacao*, means "food of the gods."

**A**ztecs believed that chocolate was the gift from a god, and most people today would probably agree that it is a heavenly treat. The ingredients of this exotic and ancient food gets its complex flavors from the fruit of cacao trees. In fact, it might be strange to think about, but chocolate is made from the seeds of this fruit, the cacao pod.

It all starts with the harvesting of cacao beans. Cacao trees typically grow in areas just north or south of the equator, such as West Africa, Mexico, Indonesia, or South America. Being tropical trees, they love high humidity, plenty of rainfall, and a shady spot to grow. In fact, cacao trees are often grown in the shade of mango, banana, papaya, or rubber trees. New cacao trees take about five years to grow their first fruits—large pods with thick skin that can be red, yellow, or orange. The pods grow on the trunks of the trees and must be harvested with a large knife.

Harvests take place twice a year, from November to January and May to July. The pods are cut open to remove the beans, which are surrounded by white,



fruity mucilage. This pulp is described as tasting like a lemon-flavored mango, or lychee. The beans and pulp are placed in special wooden boxes to ferment up to week. Later, to stop the process of fermentation, the beans are dried, oftentimes on the ground in the sun.

Next, the beans must be cleaned and prepared for transportation. All sorts of things can be found in the beans—from sticks and pebbles to wire and rope. These items are removed by hand or with the use of sieves, vacuums, or magnets. After foreign materials have been removed, beans are ready to make the journey to a chocolate-making facility. Oftentimes, they are destined for another country—or continent—such as North America or Europe.

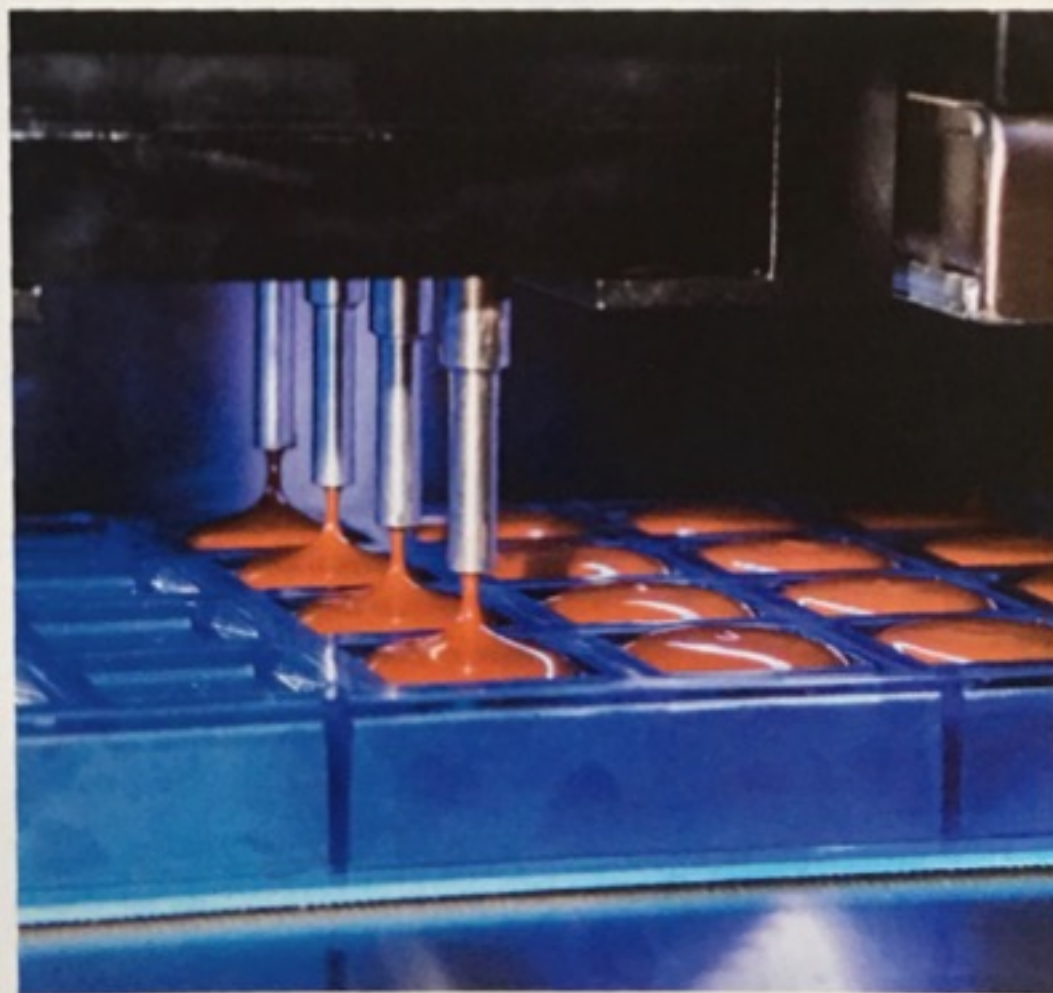
Once at the factory, the beans are slowly roasted, in the same way that coffee is, which helps them develop their flavor. This turns them a dark brown color. Once roasted, they are ready for a process called winnowing, when the shells are cracked and removed to reveal the nibs—the meaty interior of a processed cacao bean. Most chocolatiers use a machine to do this, although it can also be done by pressing and rolling a heated bean in your hand. The nibs, which taste like slightly bitter crunchy nuts, can be eaten raw. The shells can be used as mulch in gardens.

Next, the nibs are crushed and ground with stone rollers to make a smooth brown paste called liquor. (No, it doesn't have any alcohol in it!) Chocolate liquor is composed of cocoa, which provides the chocolate taste, and cocoa butter, the fat content. The thick, bitter liquor mixture doesn't taste very good yet, so additional



The pods contain a fruity pulp called mucilage.

Liquid chocolate is poured into molds.







Chocolate liquor is a mixture of cocoa and cocoa butter. More cocoa butter, sugar, and milk are added.

cocoa butter is added to it, along with sugar, milk (for milk chocolate), and flavorings such as vanilla. The extra cocoa butter provides the melt-in-your-mouth texture we all love. These ingredients are conched, or beaten and heated, in a huge mixer over several days to reveal the flavor and consistency of melted chocolate. Once the ingredients are well blended, they are further refined so that the chocolate is smooth and no gritty particles can be detected in your mouth.

Finally, the liquid is ready to be poured into molds. The chocolate is slowly heated and cooled in a process called tempering, so that the particles inside form properly into a solid bar that doesn't crumble. When the liquid turns into a solid, the bar is wrapped in a bag, paper, or foil so it can be shipped out to stores and eventually end up in your—or someone else's—belly. Yum!





Elisa Parhad is a writer in Los Angeles, but she used to live just a few blocks away from the Theo Chocolate factory in Seattle, Washington. Here, she could visit the factory on Saturdays and buy lots of imperfect chocolate bars that she used at chocolate-tasting parties with her friends.

### **FAST FACTS:**

- About 70 percent of the world's cocoa comes from countries in West Africa (Ivory Coast, Ghana, Nigeria and Cameroon), where there are a total of about 1.5 million cocoa farms.
- The cacao tree has a lifespan of about 100 years, but it will only produce fruit for about half of its lifetime.
- It takes between 400 and 500 cocoa beans to make one pound of chocolate, which means that, on average, each cacao

tree produces about 4 pounds of chocolate each year.

- Bees do not pollinate cacao tree flowers—flies do.
- Cacao trees are so delicate that farmers typically lose about 30 percent of their cacao crop each year.
- The shape of glass Coca-Cola bottles, introduced in 1916, was inspired by the long, lined shape of cacao pods.

### **VOCABULARY WORDS**

**Ferment/Fermentation**—the process in which a substance breaks down into a simpler substance through the help of microorganisms like yeast and bacteria.

**Mucilage**—a gelatinous substance of various plants, such as legumes or seaweeds.

**Tempering**—a heat treatment used to ensure the formation of stable crystals in a solid.

Almost done! Candy bars are cut and prepared for packaging

