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All About Chocolate



By Robert Charles

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All About Chocolate



Written by Robert Charles



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Introduction

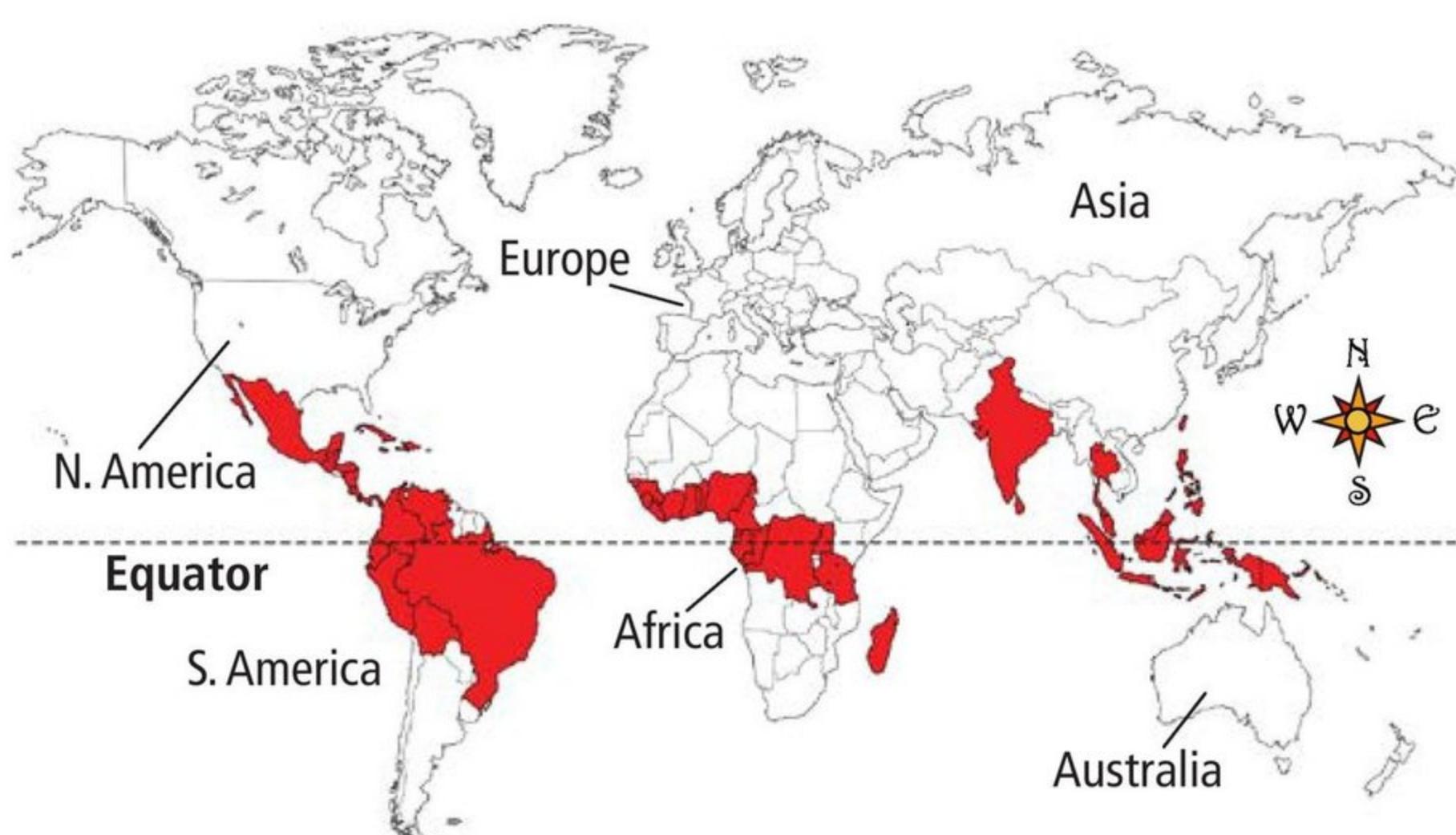
Ask people about their favorite sweet thing to eat, and they'll probably say it's chocolate. People around the world love chocolate. They love it so much that every year they eat more chocolate than any other sweet.

If you have ever wondered where chocolate comes from and how it's made, then read on.

Where Chocolate Comes From

It might surprise you to learn that chocolate actually grows on trees. That doesn't mean that you can pick a chunk of chocolate from a tree branch and eat it. In fact, the chocolate growing on trees looks, tastes, and smells nothing like the chocolate you eat.

The tree that gives us chocolate is the **cacao** (kah-KOW) tree. It is an evergreen tree that can grow to be over 40 feet (12.2 meters) tall. Chocolate comes from beans that are found in large pods on the tree. Cacao trees grow where it is hot and wet. Mostly, they grow near the equator. When young, these trees need protection from the wind and sun. But as they grow older, they can grow in full sunlight.



The shaded areas of the map show where cacao trees grow close to the equator, where it is hot.

The cacao tree originated in the Amazon River region of South America.

Through the course of history, the tree spread to other parts of South America, Central America, and Mexico.

It was also introduced to other parts of the world, including Africa, in 1870. Today, more than two thirds of the cacao in the world comes from western Africa. Brazil is the next largest producer.



Cacao trees grow in the wild, as well as on plantations.

Today, most cacao trees are grown on farms called **plantations**. It takes four to five years before a cacao tree begins to grow pods. Cacao trees have large, smooth, shiny green leaves that stay on the tree year-round. They have lots of small white or yellow flowers that bloom during the year. The flowers give off a bad smell that attracts flies to pollinate the plants. Some of the flowers change into pods, but most do not. Only about one out of every ten or twenty flowers will become a pod.

The pods are shaped like little footballs. They grow on the trunk and larger branches of the tree throughout the year. Workers trim the branches to make sure that they get the most pods possible from the trees. The pods are green when they first form, but they change to a golden or reddish color as they get ripe. The pods are picked when they are ripe or mature. Since cacao tree roots grow close to the surface and are easily damaged, workers have to be careful not to step on the tree's roots when they remove the pods.



These pods contain the beans that will be used to make chocolate.

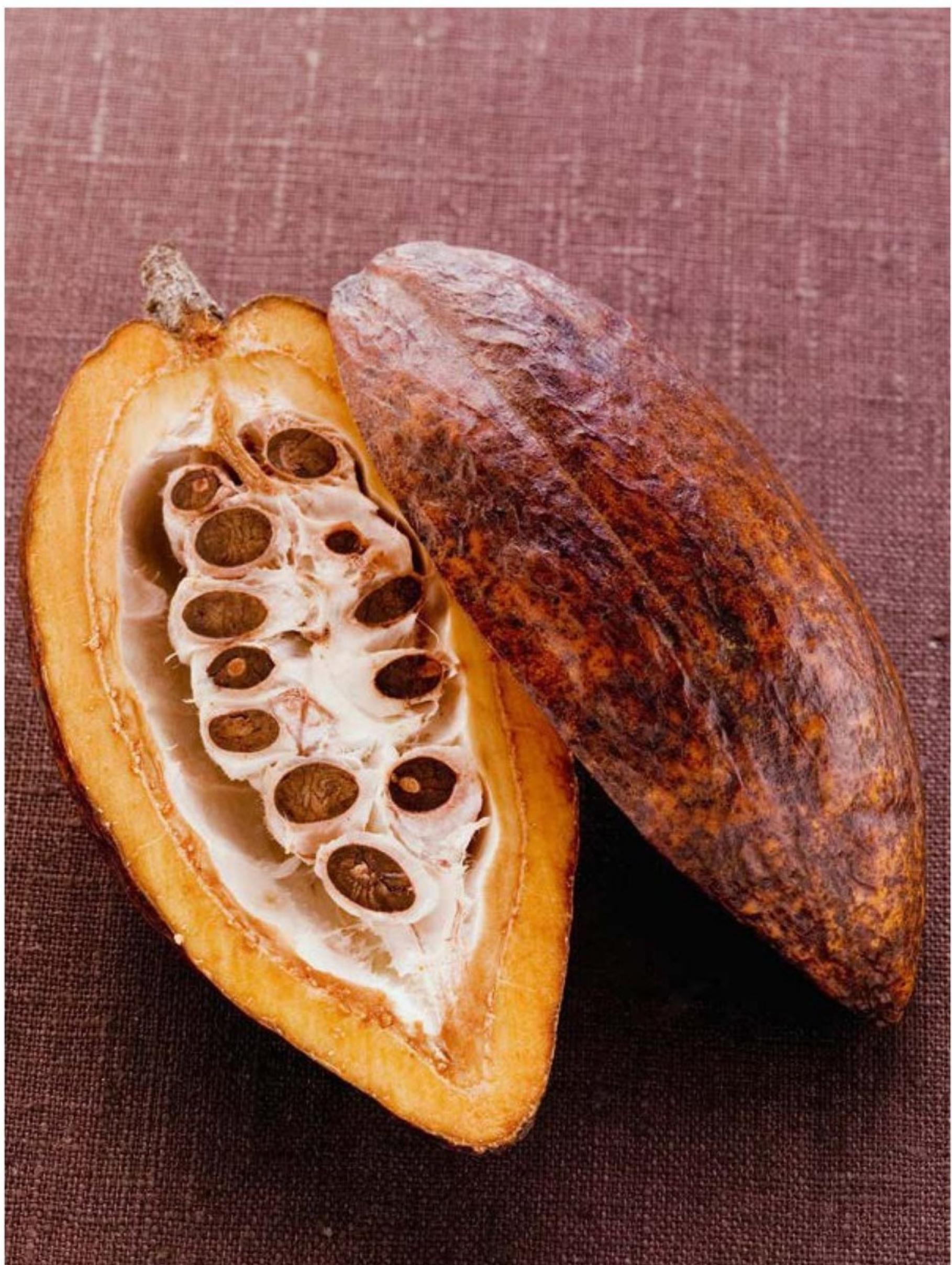


A harvester cracks open cacao pods to get at the seeds.

Preparing the Beans

Taking the pods from the cacao trees is the first step in making chocolate. It's not the pods that are important—it's the 20 to 50 beans found inside the pods, which are actually the tree's seeds. It takes a lot of beans and a lot of work to make a kilogram (2 lbs) of chocolate. About 800 beans, removed from 20 to 40 pods, are needed. First, the pods are gathered, and then someone using a large blade called a **machete** (mah-SHET-ee) cuts each pod open with one or two forceful whacks. A skilled pod breaker can break open as many as 500 pods in a single hour.

The beans are then scooped out of the open pod. The beans are not brown, as you might expect. Instead, they are cream colored and covered with a soft pulp. These beans are a long way from being the chocolate you know.



This is what the inside of a cacao tree pod looks like.



A worker spreads the cacao beans so they can dry and then begin the fermentation process.

The pulp-covered beans are put into piles or boxes and covered. As the beans come in contact with the air, they begin to change from a cream color to a purple color. The beans also change on the inside in a process called **fermentation**. Fermentation can take more than a week, but the fermented beans still do not taste or smell like chocolate.

After the beans have fermented, they are dried. The beans are either dried outdoors by spreading the beans on large mats in the sun, or they are taken indoors and dried by hot, dry air blown from pipes. As they dry, the beans are turned. Once the beans are dry, they are placed in large cloth bags and shipped to makers of chocolate.

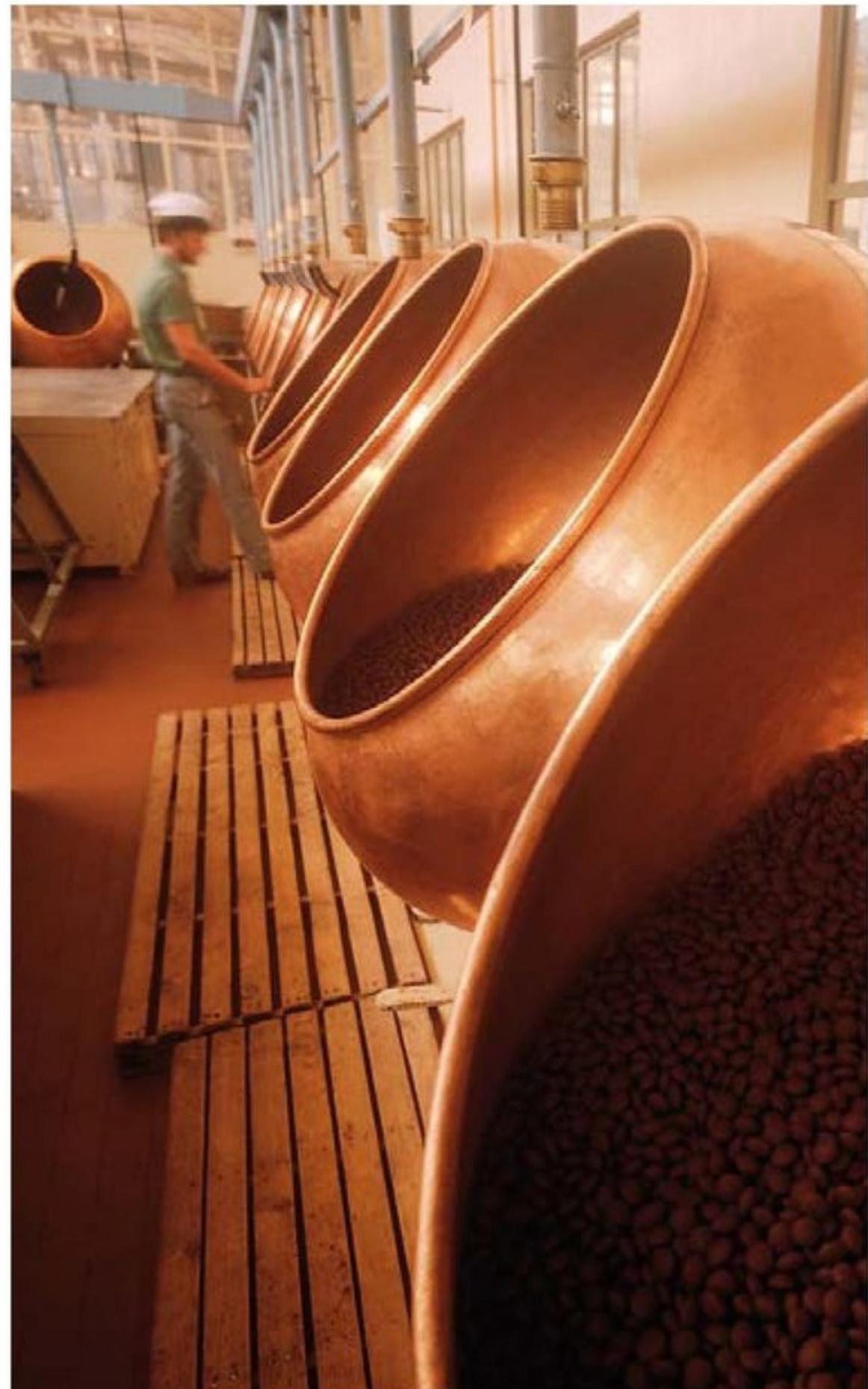


Workers spread cacao beans to dry in the sun.

From Beans to Chocolate

Making chocolate from the fermented, dried beans is a very long and complicated process. First, the beans need to be cleaned, removing any remaining pulp or pieces of the pods. Then, chocolate makers blend different varieties of beans to make sure the chocolate has just the right flavor.

The cleaned and blended beans are roasted in order to bring out the chocolate flavor. This is the stage when the beans begin to smell like chocolate. As the beans are roasted, the thin shell that covers them grows brittle. The beans pass through a special machine that cracks their shells and blows away the pieces of shell with fans.



Beans roast in giant drums at a candy factory.

After the shells are removed, only the meaty part of the bean, called the *nib*, remains. The nibs are ground up and crushed until they become a liquid. The liquid is poured into molds where it cools into bars of bitter, unsweetened chocolate. The bars are then pressed until the most important part of the chocolate, a yellow liquid called *cocoa butter*, is removed. The cocoa butter drains through a screen and is collected to make the chocolate we eat.

After the liquid cocoa butter is removed, the solid part of the bar is ground into a powder. Cocoa powder is sent to dairies and bakeries to flavor baked goods and dairy products.

Word Origins

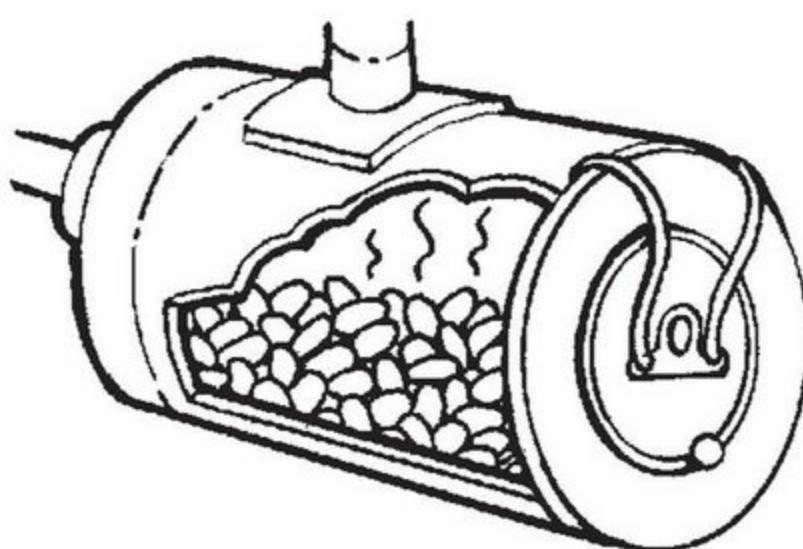
Cacao or Cocoa?

When the products of the cacao tree made their way to English-speaking countries, the Spanish word cacao became the English word cocoa. Writers and speakers of English today still use the word cacao when discussing the tree and its flowers, pods, and beans. People usually use the word cocoa when discussing the many products that come from the beans.



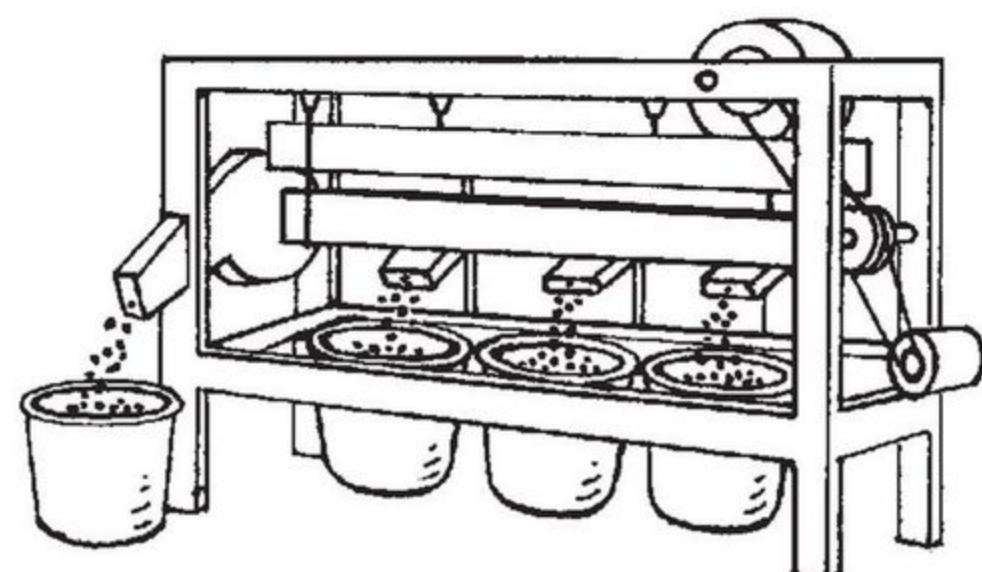
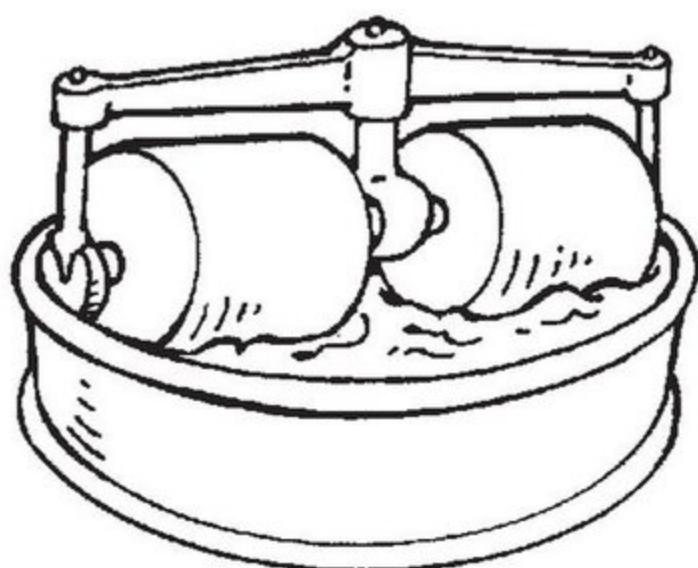
The chocolate we eat is made in the final step, called **conching** (KONCH-ing). Conching takes place in machines with big rollers. A mixture of sugar, cocoa powder, cocoa butter, and other **ingredients**, such as milk and vanilla, is placed in the machines and then rolled and mixed until smooth. The smooth mixture is poured into molds and cooled. After it has cooled and solidified, the chocolate is removed from the molds and wrapped in packages for shipping.

Another popular form of chocolate is white chocolate. White chocolate is made by mixing sugar and milk solids directly with cocoa butter.



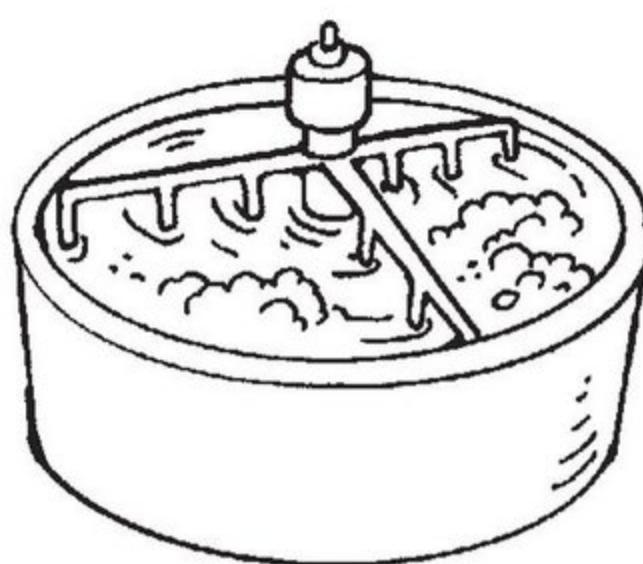
1. Roasting

2. Shelling

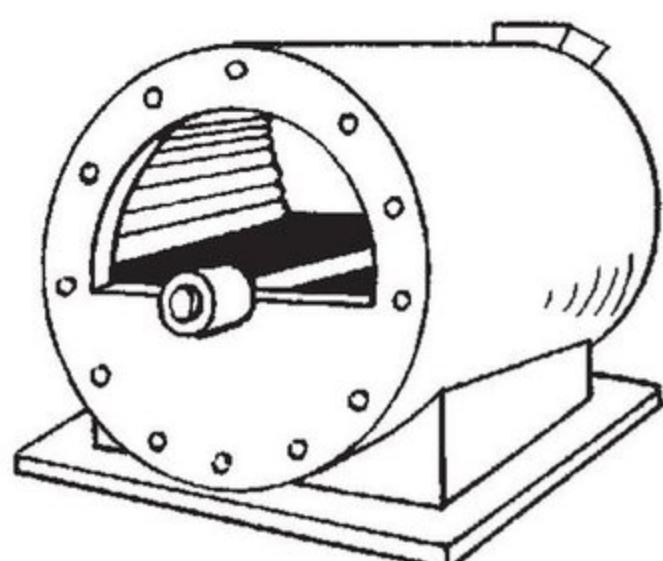


3. Grinding

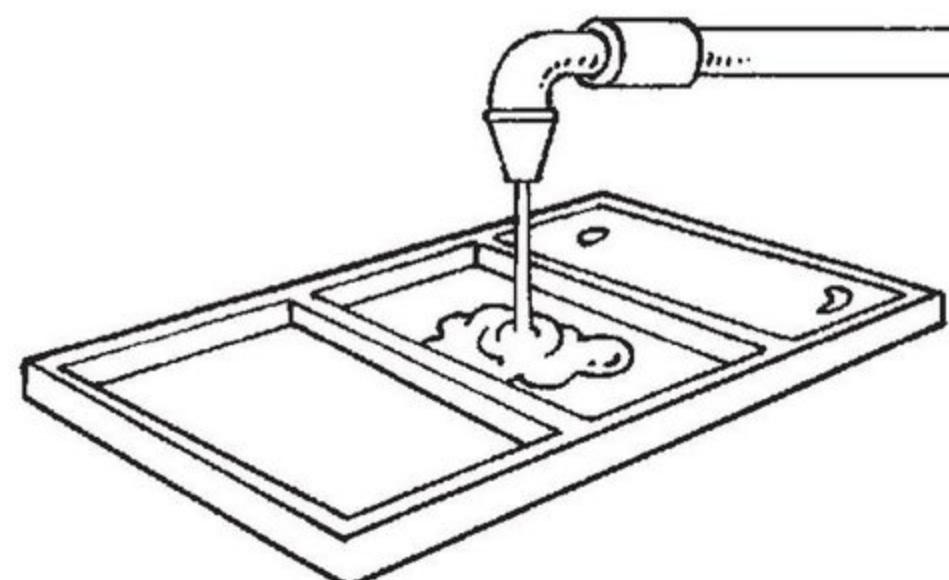
4. Mixing



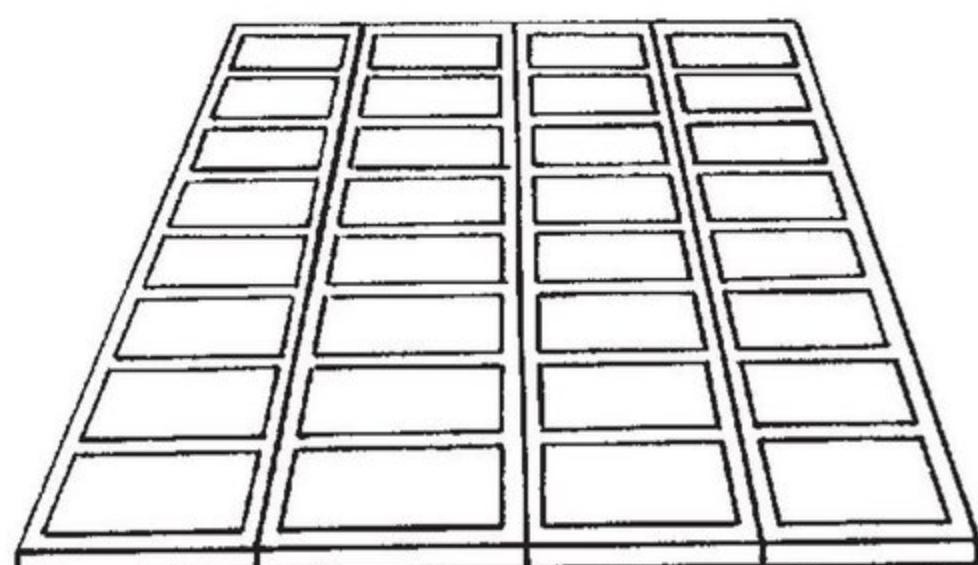
5. Conching



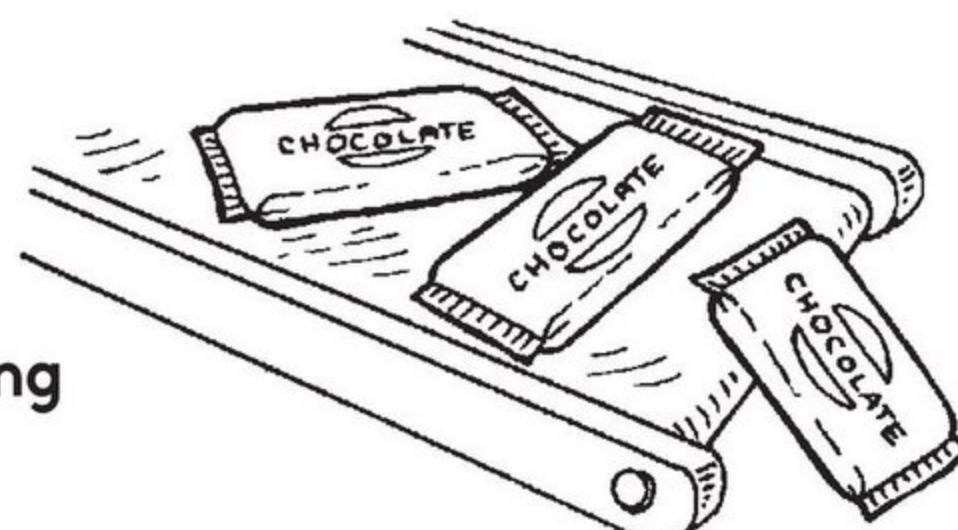
6. Pouring



7. Cooling



8. Wrapping





History of Chocolate

As near as historians can tell, people living in Mexico and Central America were using chocolate almost 2,000 years ago. These people enjoyed a drink called *xocoatl* (shoh-coh-WAH-tuhl) made from roasted chocolate beans. But if you were to try this drink today, you'd find that it tastes much different than the chocolate drinks you enjoy. In fact, it was a very bitter-tasting drink—kind of like coffee.

When Christopher Columbus returned from his fourth trip to the New World, he brought some cacao beans to show to the king and queen of Spain. Europeans did not know what to do with the beans, so they mostly ignored them. They were more interested in spices and other things Columbus brought back.

It was not until a Spanish explorer by the name of Hernando Cortez returned from a voyage to the

New World that Europeans began to see that there was value in cacao beans. The great Aztec ruler Montezuma had served Cortez a drink made from cacao beans. The Aztecs told Cortez that it was the drink of the gods. They believed that cacao beans gave them added wisdom and strength. They placed so much value on cacao beans that they used the beans as a form of money. Cortez saw much more value in the beans as money than as a drink. He planted cacao trees so that he could use the beans, not for chocolate, but as money. It was his way of growing money on trees.

Cortez brought back knowledge of how to make the chocolate drink, but it still was not popular outside the New World. Eventually, the Spanish began mixing sugar with the drink, along with cinnamon and vanilla, and serving it hot. The drink soon became very popular among the nobility and the very wealthy. The Spanish valued chocolate so much that they kept the knowledge of how to make it secret from the rest of Europe for almost one hundred years.

The Spanish created many plantations of cacao trees in their colonies in South and Central America to ensure a plentiful source of the beans. During this time, countries at war with Spain would sometimes capture Spanish ships full of

cacao beans and would destroy the cargo as worthless because they had no idea what the beans were used for. It is widely rumored that Spanish monks were the ones who finally shared the secret of how chocolate was made with other Europeans, changing the world forever.

Until the 1600s and 1700s, chocolate was a luxury food for royalty and powerful church officials. During the 1600s, people began grinding large amounts of cacao beans in **mills**, producing much more chocolate and lowering the cost. The invention of smooth milk chocolate also increased the treat's popularity. The first chocolate shop in London, England, was opened in 1657. In the 1700s, a steam-driven chocolate grinder was invented, allowing factories to quickly make tons of affordable chocolate. Today, chocolate is a favorite and affordable treat in many countries.



Chocolate is enjoyed with gusto by people of all ages.



History of Chocolate

- 200** — The first use of chocolate by people in Mexico and Central America
- 900** — Chocolate used as money by people of Mexico and Central America
- 1502** — Columbus brings cacao beans back to Europe
- 1528** — Hernando Cortez brings cacao beans and knowledge of how to make a chocolate drink to Spain
- 1657** — A Frenchman opens the first chocolate shop in London, England
- 1828** — Cocoa press is invented
- 1847** — First solid chocolate bar is sold
- 1875** — A man in Switzerland makes and sells the first milk chocolate
- 1894** — Milton Hershey establishes Hershey Chocolate Company
- 1913** — Invention of a method for making chocolates filled with other sweets
- 2007** — World consumes over 3,000,000 metric tons of cacao beans



Some specialty shops sell only chocolate treats.

Do You Know?

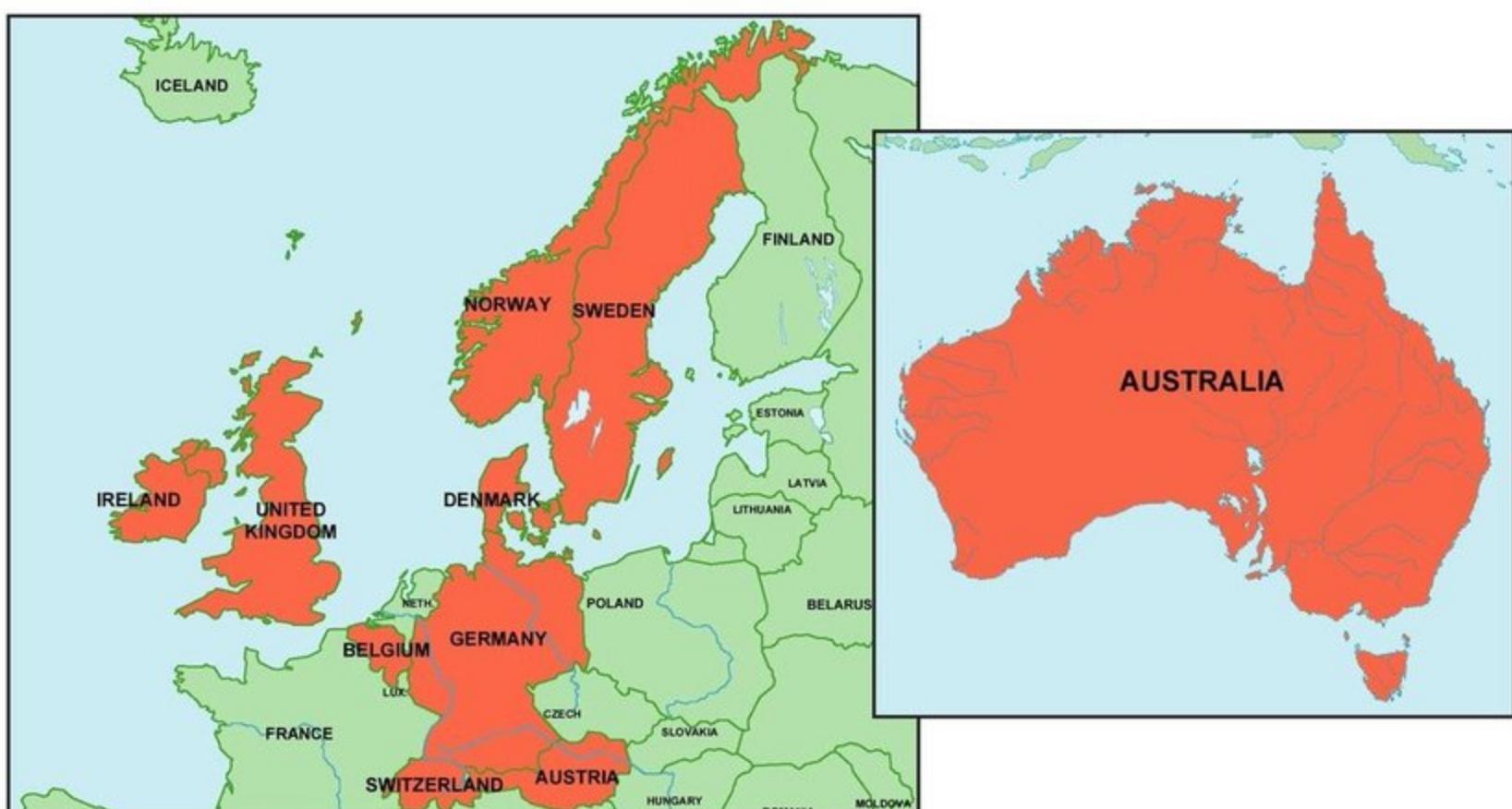
Recent medical studies show that there are definite medical benefits in eating chocolate. The benefits are linked to dark chocolate, rather than milk chocolate. Some of the medical benefits include a reduction in heart disease and blood pressure.

Chocolate Today

Most of the chocolate made in factories today is used to make chocolate candy. Other chocolate goes into ice cream, chocolate drinks, and baked goods such as cakes and doughnuts. Even a sauce called **mole** (MOLE-ay), used in Mexican cooking, is made from chocolate.

Each year people around the world **consume** tons of chocolate. The people of Switzerland consume more chocolate per person than anyone else in the world. They are joined in their love of chocolate by people in many other European countries. The table below shows chocolate consumption in the top ten chocolate-consuming countries.

Top Chocolate-Consuming Countries on a Per-Person, Per-Year Basis



1	Switzerland.....	22.4 lbs.....	10.1 kg
2	Austria	20.1 lbs	9.1 kg
3	Ireland	19.5 lbs	8.8 kg
4	Germany.....	18.0 lbs.....	8.2 kg
5	Norway	17.9 lbs	8.1 kg
6	Denmark.....	17.7 lbs.....	8.0 kg
7	United Kingdom.....	17.5 lbs	7.9 kg
8	Belgium.....	13.2 lbs	6.0 kg
9	Australia	13.0 lbs	5.9 kg
10	Sweden.....	12.9 lbs	5.8 kg

Try This!

Yummy Chocolate Brownies

Make sure you have an adult to help you with any cutting or handling of hot foods.

- 1 Gather these ingredients:

1 cup butter or margarine

4 squares (1 oz. each) of unsweetened chocolate (also called baker's chocolate)

4 eggs

2 cups white sugar

2 teaspoons vanilla extract

1 ½ cups all-purpose flour

1 teaspoon baking powder

pinch of salt



- 2 Preheat the oven to 350°F (180°C). Rub grease over a 9x13-inch (15-cup) baking pan.
- 3 Melt the butter in a saucepan over medium heat on the stovetop. After the butter is melted, take it off the heat and stir in the chocolate until it is melted and mixed in. Add the eggs one at a time, stirring thoroughly. Then add the sugar and vanilla, stirring the mixture until smooth.
- 4 In a separate bowl, mix the flour, salt, and baking powder. Gently pour the butter, chocolate, and sugar mix into the flour and stir it until the flour is completely wet.
- 5 Pour the mixture into the baking pan and spread it evenly.
- 6 Bake for 25 to 30 minutes until the brownies begin to pull away from the sides of the pan.
- 7 Let the brownies cool in the pan before you cut them. Makes 12 brownies.



The next time you eat chocolate, think about how it was made.

Conclusion

It took a long time for chocolate to become popular outside the regions of Central and South America where cacao trees were first grown and used. Over the years, people added things such as sugar and milk to the long and complicated process of making chocolate from cacao beans. Today, people around the world eat millions of kilograms of chocolate, making it the world's most popular sweet.

Glossary

cacao (n.)	the tree from which we get chocolate (p. 5)
conching	the process of smoothing a chocolate mixture (p. 14)
consume (v.)	to eat or buy (p. 21)
fermentation (n.)	a natural changing process that occurs in many foods and plants (p. 10)
ingredients (n.)	the different food items that go into a dish or recipe (p. 14)
machete (n.)	a long, thick knife (p. 8)
mills (n.)	machines that use animal, wind, or steam power to grind things (p. 18)
mole (n.)	a spicy Mexican sauce made with chile and strong chocolate (p. 20)
plantations (n.)	large farms with many workers (p. 6)

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