



When Columbus set out from Spain his objective was to get King Ferdinand and Queen Isabella into the black pepper business. He believed that the islands he landed on in the Caribbean were off the coast of China. When the natives showed him a pungent fruit, he decided to call it *pimiento*—similar to the Spanish word for black pepper, *pimienta*—and he had two good reasons. First it had an effect on his tongue that felt like black pepper. But more importantly he was getting paid to find peppers.

“The land was found to produce much *aji*, which is the pepper of the inhabitants, and more valuable than the common sort black pepper. The natives deem it very wholesome and eat nothing without it...50 caravels might be loaded every year with this commodity.”

—Christopher Columbus, 1493

The small, round, dry black pepper that we grind in a mill is native to India and was brought to ancient Greece and Rome by Arab traders. It was so valuable in 15th century Europe that both the Spanish and the Portuguese spent fortunes sending out expeditions to try and break the Arab monopoly.

The birthplace of the hot pepper was probably central Bolivia, and over the centuries it became the spice most used by Native Americans. You can usually tell how far down the evolutionary line a particular pepper is by looking at its size—the smaller it is, the closer it is to its wild ancestor.

Today Mexico raises the largest variety of peppers. There are over 1,600 different varieties of pungent peppers, with new forms constantly being developed. Annual rainfall, soil chemistry, and daily temperature patterns affect the development of each species. The peppers grow on plants that are generally two to three feet high. The fruits start out green and color as they ripen.



As a general rule, the hotter the climate a pepper grows in the more pungent it will be. But it's not just the daily temperature that counts. Long hot nights raise a pepper's

pungency. And if a pepper plant is stressed by lack of water or poor soil, its fruits tend to get hotter. Which is perfectly understandable...I tend to get hotter when I'm stressed, too. Generally, pods that are thin and pointed with tapering shoulders will be more pungent.

MAYA THESE HOT

Archeological evidence indicates that the natives of Mexico have been using hot peppers for at least 7,000 years. At one point they were used to pay taxes to the government. And even after the conquest of Mexico by the Spanish, hot peppers remained a form of tribute. Antonio de Mendoza, the first viceroy of what he liked to call New Spain, demanded dried chilies from the people he conquered.

The Maya, who have lived on Mexico's Yucatán peninsula for at least 20 centuries eat one of the hottest of all peppers—the habanero. In 1912, the pharmacist Wilbur Scoville developed a technique for measuring the heat of a pepper. The Scoville scale ranges from zero for the green bell pepper, to 25,000 for the jalapeño, to 300,000 for the habanero. But the habanero also has a fragrant quality that balances its heat.

Amal Naj, who wrote an excellent book titled *Peppers*, believes that the habanero is a symbol of Maya independence within Mexico. The habanero is the pepper of choice for the Mayas, who were never completely subjugated by the Spanish. They see the habanero pepper as a badge of their self-determination. At the same time they feel that the jalapeño—which is more popular with northern Mexicans—symbolizes the European invader. The majority of habaneros grown in the world are grown in the Maya territory of the Yucatán, and half of that harvest is eaten right there.



Mexico is the world epicenter for pepper eating. The nation produces a greater variety of peppers than any other country and uses them in the most sophisticated ways. Over 150 different peppers show up in the market and each is used to produce a specific effect within a meal. One variety is the bright

green jalapeño, which is used fresh in raw salsas and salads. When mature red jalapeños are smoked and dried, they are known as *chipotles* and used for their intense, rich and smoky flavor in stews and sauces.

PEPPERING THE WORLD

An important moment in the history of hot pepper was the signing of the papal Treaty of Tordesillas in 1494.

At a point 370 leagues west of the Cape Verde Islands, the Pope took his magic marker and drew a longitudinal line that divided the world in two. The Spanish were given the right to explore and trade in the area to the west; Portugal got everything to the east, which included Africa and Asia.

But they didn't get around to drawing a second line in the Far East. So in 1529, the Pope had to come back and construct the Treaty of Zaragoza, which granted Spain control of the Philippines, while Portugal got the Spice Islands. As a result it was the Spanish and the Portuguese who spread hot pepper around the world.

Columbus was working the Americas for the Spanish, but the Portuguese were also in the field. During the early 1500s, the Portuguese, sailing south along the coast of South America, ran into the hot pepper in Brazil and brought it back to Europe.



From there it traveled to Portuguese trading posts in West Africa, around the tip of Africa to India and then to the Portuguese colony of Macao in China. From Macao the pepper hot-footed it with the Portuguese to Japan, the Philippines, and across the Pacific. Within fifty years, hot peppers had traveled all the way around the world.

The Portuguese were worried about their slaves rebelling and instituted a policy that prohibited any plantation from having a large concentration of slaves from a single tribe or geographical area. One result was that the Portuguese ended up traveling around coastal Africa looking for new sources of slaves and as they traveled they brought along their hot peppers. By the time the British came to dominate the slave trade in the middle of the 1600s, American peppers were so important to Africans that the British included them in their rations onboard the boats that carried slaves to the Americas.

But strangely, when Columbus took his hot peppers back to Europe they were not well accepted. The Turks discovered hot peppers through Indian and Arab traders and introduced them to the Hungarians, who had been conquered by the Turks. Hot pepper quickly became the spice of the poor. The Hungarians loved the flavor of the pepper but not its heat. During the harvest, workers would remove the veins and seeds of the pepper, where the heat was centered. The pods were dried and

ground to a powder, and the result was paprika, which has become the flavor of Hungary.

The microclimate needed for growing the pepper used to make paprika is so specific that only Hungary has been able to produce the highest quality on a commercial scale. But even without the ability to produce paprika, the rest of the world is doing quite well with the pungent version of the chili pepper.

One out of four people worldwide eat hot peppers every day. People cook with hot peppers because they like the taste, but scientists believe that people who enjoy spicy food are probably healthier, especially in hot climates. Pungent spices like hot peppers, garlic, and cumin are lethal to the microorganisms that cause food to spoil. Over thousands of years without refrigeration, people in hot climates developed cuisines that used the pungent spices to help preserve food.

In general, poor people eat more hot pepper than the rich. If a diet is based on plain starchy foods like rice or corn, which is often the case in poor communities, hot pepper will bring flavor to the meal because it has the ability to open the mouth's flavor receptors, making your taste buds more sensitive. Then, almost everything you eat tastes better.

Surprisingly, the hot pepper came late to North America. Mexican colonists brought chiles to the American southwest. African slaves and immigrants from the Caribbean introduced hot peppers to the American South. But most Americans got along without them.

These days, however, pungent peppers in the United States are becoming a hot business. They have the greatest profit margin of any legally grown cash crop.

The United States is becoming a nation of pepper lovers. People who had no interest in pungent foods are beginning to try them and those who are already into the hot sauce want it hotter. By 1982, hot sauce was already part of the basic rations for American astronauts in space, but astronaut William Lenoir took a fresh jalapeño pepper along just to play safe.

TABASCO

The most popular branded use of chili peppers in the world is probably Tabasco Sauce, which is sold in over 100 countries.

It's made on Avery Island, which is a twenty-two hundred-acre cap that sits on top of a giant salt dome that rises up from an ancient seabed about 130 miles west of New Orleans.

In 1862 John Marsh Avery started quarrying the salt and supplying it to the Confederacy, which led the Union Army to invade the island and destroy the salt works.

When the war was over the Avery family went back into the salt business. This time Edmund McIlhenny, a prominent local banker who had married into the family, began to experiment



with making a pepper sauce.

At some point, Edmund had been introduced to tabasco peppers, which had been brought up from Mexico or Central



America. Edmund planted the peppers in his garden and used them to add flavor to the monotonous food that was available after the War. Around 1866, he started using the peppers to make a hot sauce; by 1868 he was selling his creation.

The peppers were crushed, mixed with Avery Island salt and aged for thirty days in jars or wooden barrels. At that point, French wine vinegar was added. The final blend was aged for another thirty days and regularly hand-stirred throughout that period in order to blend the flavors. Edmund poured the finished sauce into small cologne bottles which he corked and sealed with green wax.

And that's just about the way it's made today—except today the pepper mash is aged for three years instead of only two months. A member of the McIlhenny family still walks the fields and marks the peppers that are ready for harvesting. The pickers spot a ripe pepper by comparing its color to a stick that has been painted with the color of a perfectly ripe pepper. And a McIlhenny examines the mash and decides when it's ready for processing and bottling.

THIS IS YOUR BRAIN ON CAPSAICIN

In 1876, an English scientist working in India identified the substance in the pepper that was responsible for its heat. Inside the pod and concentrated in the white pith (and sometimes making its way into the seeds themselves) is an odorless, tasteless chemical called *capsaicin*. But it's not the amount of capsaicin in a pepper that raises the pungency. It's the chemical structure. The shorter the acid chain in the capsaicin molecule, the higher the heat.

Some authorities believe that hot peppers are addictive, much like caffeine. The theory goes like this:

Capsaicin hits the nerve endings on your tongue, which sends a message to the brain that reads "Help! My mouth is on fire." The brain thinks the body is under attack and responds by sending out endorphin, a painkiller that produces a pleasurable high similar to a very mild dose of morphine. Every time the pepper lover takes a bite, there's another hit of endorphin. Next thing you know,



you're hooked on pungent peppers. But before you run out and buy up every habanero in a fifty mile radius, remember it's just a theory.

It's not just the heat of a pepper that's important to the pungent pepper lover. The habanero hits you like a Mack truck but quickly rolls on and leaves you with a smooth aftertaste. And different peppers impact different parts of the mouth. Since each part of your mouth is sensitive to different tastes, where you get hit is important.

Which brings me to the question of first aid. Capsaicin isn't soluble in water, so a cold drink won't help, but it does dissolve in alcohol. One way to get the burning sensation out of your mouth is to rinse with a mouthwash of vodka. Do remember to spit it out.

The best way to test your level of acceptability is to start by taking a small bite of the pepper. Then move on until pain brings the experiment to an end. Capsaicin is more than 100 times more pungent than the piperine in black pepper, but unlike black pepper, which inhibits all tastes, capsaicin only blocks the perception of sour and bitter. All other flavor receptors are left intact.

DR. PEPPER WILL SEE YOU NOW

For thousands of years, hot peppers have been used in Mexico and Central and South America for their medicinal effects. The Aztecs rubbed peppers on sore muscles. The Mayas made a drink of hot pepper, which they used to cure stomach pains. They even rubbed hot pepper on their gums to stop toothaches.

When hot peppers were first brought back to Spain by Columbus, they were treated more as a medicine than a spice. During the 1500s, physicians in Seville recommended hot pepper for an assortment of illnesses. Spanish sailors took hot peppers on board their ships to prevent scurvy. They were also thought to improve eyesight.

But the scientific confirmation of hot peppers' medical value was first made by Dr. Albert Szent-Györgyi. His wife loved hot peppers and regularly prepared them for dinner. One night, Albert (who was not a fan of hot peppers) took his dinner to his lab so he could *not* eat them in peace without offending his wife. At the time scientists were trying to isolate the mysterious acid that prevented scurvy. Out of curiosity he studied their chemical make up and discovered they were a rich source of the substance, which he called ascorbic acid, or vitamin C. He won a Nobel Prize for his research in 1937.

Recently, scientists in the United States have been studying hot peppers as a possible cure for a number of diseases. Dr. Irwin Ziment at the Olive View Medical Center in Los Angeles may end up as the ultimate Dr. Pepper.



The ancient Greeks used hot pepper as a cold remedy and, in fact, the capsaicin in hot pepper is chemically similar to the active ingredient in Robitussin. You also find a similar chemical in Sudafed and Vicks Formula 44D.

Normally, the mucus in your respiratory system is thin and moves easily through the sinuses. But when you have a cold, mucus becomes thick and stops flowing, coughing begins and breathing problems develop. The medicines prescribed for these conditions are designed to thin the mucus and get it flowing again. The capsaicin in hot pepper acts in the same way as the medicines.



Dr. Ziment thinks that Columbus may have suffered from a respiratory illness, which might explain why Columbus made such a strong pitch for hot pepper. People are often interested in anything that has to do with their own medical problems.

Dr. Ziment's wife, working closely with the doctor, was able to develop a recipe for chicken soup that appears to have a positive effect on various respiratory ailments associated with the common cold.

It was first published in Dr. Ziment's authoritative work on pulmonary disease, *Practical Pulmonary Disease*.

- Twenty-eight ounces of chicken broth
- Cloves from one bulb of garlic, chopped
- Six sprigs parsley
- Two teaspoons minced cilantro
- One teaspoon lemon-pepper
- One teaspoon minced mint leaves
- One teaspoon minced sweet basil
- One teaspoon curry powder
- One teaspoon hot pepper flakes (adjust to personal tolerance)

Four-ounce portions should be taken one to three times each day before meals. Keep tissues at the ready. Do not operate heavy equipment or work on plans for a missile shield for twenty minutes after each dose.

"Peppers are a food as well as a condiment, a spice and a medicine. Red peppers and green peppers do contain a lot of carotene which is a useful aid because it's an anti-oxidant. They also contain several vitamins, the most important being vitamin C. I think many people would be surprised to know that green bell peppers contain more vitamin C than citrus fruits."

—Dr. Irwin Ziment



TO LEARN MORE

PEPPERS - THE DOMESTICATED CAPSICUMS
BY JEAN ANDREWS
PUBLISHED BY UNIVERSITY OF TEXAS PRESS

PEPPERS: A STORY OF HOT PURSUITS
BY AMAL NAJ
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It appears that when a concentrated solution of capsaicin is applied to the body it begins to destroy the messengers in the area that signal pain to the brain. And most amazingly, it seems to affect only the pain messengers. The nerves that sense heat, cold, pressure and other sensory messages remain active.

It looks like the hot pepper was the first spice to have been used by humans anywhere on the planet. It changed almost every cuisine in the world from Indian curry to Texas chili. Given the worldwide appreciation for chili peppers, Columbus discovered a spice more valuable than the one he was searching for—a spice that may also turn out to be one of our most valuable medicines.