

TIME OF THE SEASONING

Taking the History of the World With a Grain of Salt

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It's historically linked to industry, political power and war. It's been a source of great wealth and one of the most desired substances in history. Yet today it's plentiful and dirt cheap. What is it? It is, of course, salt.

Early humans soon learned that their bodies needed salt to stay alive. We don't know if early hunters salted their mastodon meat, since meat already contains plenty of salt. But after the last Ice Age, when people turned to agriculture, they ate less meat and more grains, and had to supplement their diets with salt.

Salt also draws water out of bacteria, so they shrivel and die. Since bacteria cause food to spoil, killing bacteria helped preserve food. Before refrigeration, salting, brining, or pickling food was the only way to keep fish, meat, and vegetables edible for long periods.

Salt was also used for antibiotic and healing purposes. As civilization progressed, salt was used to make everything from glazed pottery to gunpowder. And in ancient Egypt, dead bodies were preserved with salt in the form of baking soda before being wrapped in strips of linen and sent along to the afterlife.

Salt is salt, right? When you go to the grocery store to replenish your supply, you probably expect to see just a few varieties, like iodized salt and kosher salt. But you might also find things like "sel gris" and "fleur de sel." Some gourmets claim that these salts taste different from iodized salt and give additional flavor to foods seasoned with them.

Even if you try not to use much salt, it's almost impossible to avoid it. There are five tastes that all people are able to experience -- bitter, sweet, sour, salty and umami (meaning "delicious and savory taste" in Japanese). Only "salty" is directly related to a substance that we need to consume in order for our bodies to function properly. Because of this need, humans and animals have a built-in taste for salt.

Salt contains two basic elements: sodium and chlorine. Sodium is a silvery-white metal that reacts violently when mixed with water and oxidizes in air. Chlorine is greenish-yellow and exists as a gas at room temperature. Because both elements are so volatile, they are found in nature as part of compounds like sodium chloride, which forms the mineral halite or rock salt. Although sodium is volatile and chlorine is toxic, together as sodium chloride they are integral to life.

Not only do we need to consume salt, we also need it for a variety of nonfood uses. But if it's so important, why do health organizations recommend that we closely watch our intake? Apparently, there can be too much of a good thing.

The sodium and chlorine in salt are minerals that conduct electricity in our fluids and tissues. Our kidneys maintain the balance of electrolytes and water by regulating the fluids that we take in and pass out of our bodies. If this balance is disturbed, our muscles, nerves, and organs won't function properly because the cells can't generate muscle contractions and nerve impulses.

Too little salt, or hyponatremia, is one of the most common electrolyte disturbances. You can lose sodium when you sweat or urinate excessively, experience severe vomiting or diarrhea, or when you drink a lot of water. Taking diuretics, which make the body excrete excess water, can also cause you to lose too much sodium. Ultimately, hyponatremia can lead to brain swelling and death.

If you have too much sodium in your body, you might get very thirsty and urinate more to get rid of the excess. You probably hear about too much sodium, or hypernatremia, much more often than you hear about hyponatremia. But sometimes your kidneys can't eliminate all of the excess. When this happens, your blood volume can increase (because sodium holds in water), which in turn can make your heart pump harder. Because of this, some doctors have treated chronic fatigue syndrome by increasing the patient's sodium intake.

The National Heart, Blood and Lung Institute recommend that most people consume no more than a teaspoon of salt per day. We probably don't need more than half that amount to maintain the proper electrolyte balance. Many people eat several times that much.

Regardless of the latest medical advice about salt intake, it's probably a good idea to pay attention to how much salt you're eating. Fast food and prepackaged convenience foods (like frozen dinners or canned soup) have a lot of sodium because salt helps preserve food by drawing out moisture and keeping out bacteria. So, if you eat a lot of fast or processed foods, you may be eating more salt than you think. But what type of salt is it?

The different varieties of salt available for cooking can be dizzying, but all of them fall into four basic types: table salt, sea salt, kosher salt and rock salt. The first three types are food-grade salt and are required by the FDA to contain at least 97.5 percent sodium chloride. The other 2.5 percent is trace minerals, chemicals from processing or anti-caking agents.

Table salt is either iodized or non-iodized. Iodine was first added to salt in the mid-1920s to combat an epidemic of hyperthyroidism, an enlargement of the thyroid gland caused by hormonal irregularities due to lack of iodine. Children without sufficient iodine intake can also experience stunted physical and mental growth. Few people suffer from iodine deficiency in North America, although it is still a problem around the world. In some areas, fluoride and folic acid are also common salt additives.

Table salt is the most commonly used salt. It is processed to remove impurities and contains non-clumping agents like calcium phosphate. Because it has a fine texture, table salt is easy to measure and mixes evenly.

Sea salt is generally more expensive than table salt because of how it's harvested. "Fleur de sel" (French for "flower of salt"), for example, is scraped by hand from the surface of evaporation ponds. Some sea salts are not as heavily processed as table salt, so they retain trace minerals that are usually removed in the refining process. Sea salt can be coarse, fine or flaky. It can be white, pink, black, gray or a combination of colors, depending on where it comes from and which minerals it contains.

Some pink salts, such as the salt harvested in the Himalayas, get their color from calcium, magnesium, potassium, copper and iron. Others contain carotene from salt-tolerant algae and are more peach-colored. Reddish-pink salts, such as Hawaiian alaea salt, have iron oxide added in the form of volcanic clay.

Black salt is often really more of a dark pinkish-gray color. One Indian variety contains sulfurous compounds, iron, and other trace minerals and has a strong, sulfuric taste. Hawaiian black lava salt is darker and contains traces of charcoal and lava.

The color of gray salt comes from trace minerals or from the clay where it is harvested, such as the damp, unrefined "sel gris" harvested on the coast of France. Smoked salt is also grayish and is a fairly new offering among the gourmet varieties. It is smoked over wood fires and gives a smoky flavor to dishes seasoned with it.

Kosher salt is used to make meats kosher by quickly drawing out the blood. Many chefs prefer to use kosher salt. Its coarse texture makes it easy to pick up and sprinkle on food during or after cooking.

Rock salt is a large-grained, unrefined salt that usually contains inedible impurities. It's only use in cooking is homemade ice cream. Rock salt is also sprinkled on icy roadways and sidewalks to melt the snow and ice.

In 2009, more than 220 million tons of salt were produced in the world. China is the largest producer, with 53 million tons, followed closely by the United States, with 51 million tons. Salt is generally produced one of three ways: deep-shaft mining, solution mining, or solar evaporation.

Deep-shaft mining is much like mining for any other mineral. Typically, the salt exists as deposits in ancient underground seabeds, which became buried through tectonic changes over thousands of years. Many salt mines use the "room and pillar" system of mining. Shafts are sunk down to the floor of the mine, and rooms are carefully constructed by drilling, cutting, and blasting between the shafts, creating a checkerboard pattern. After the salt is removed and crushed, a conveyor belt hauls it to the surface. Most salt produced this way is used as rock salt.

In solution mining, wells are erected over salt beds or domes and water is injected to dissolve the salt. Then the brine is pumped out and taken to a plant for evaporation. At the plant, the brine is treated to remove minerals and pumped into vacuum pans; where it is boiled, and evaporated until only the salt is left behind. It is then dried and refined. Most table salt is produced this way.

After the salt is removed from a salt mine, the empty rooms often store other substances, like natural gas, industrial wastes, or our National Strategic Petroleum Reserves.

Salt is also harvested through solar evaporation from seawater or salt lakes. Wind and the sun evaporate the water from shallow pools, leaving the salt behind. It is usually harvested once a year when the salt reaches a specific thickness. After harvest, the salt is washed, drained,

cleaned and refined. This is the purest way to harvest salt, often resulting in nearly 100 percent sodium chloride. Usually machines perform this harvest, but in some areas it is still done by hand.

Prior to industrialization, it was extremely expensive and labor-intensive to harvest the mass quantities of salt necessary for food preservation and seasoning. This made salt an extremely valuable commodity. Entire economies were based on salt production and trade.

So how much was salt worth? Plenty!! Ancient Greek traders bartered their slaves for salt. A lazy slave was deemed “not worth his salt”, an insult still used today. Our word “salary” dates back to Roman times when soldiers were paid a dispensation called a *salarium argentum*, so they could buy salt. Salt was used as currency in ancient Rome, and the roots of the words "soldier" and "salary" can be traced to Latin words related to giving or receiving salt. In Mali, West Africa, salt was once literally worth its weight in gold and was traded ounce for ounce or whatever their units of weight were called. Some cultures dispensed with the middleman and just used salt itself as money.

Salt was so valuable, cities and empires grew up around it. Jericho was founded 10,000 years ago as a salt trading center. Salt profits built the Great Wall of China, and some historians believe that the expansion of the Roman Empire was, in part, a determination to control reliable sources of salt. Some cities, like the Austrian city of Salzburg still retain a grain of their salty history in their names.

Some places, like Austria, were loaded with the stuff, while other areas had to pay a fortune for it. The idea of getting salt cheaply and selling it at a high price inspired trade routes across oceans and deserts.

Salt gave our ancestors freedom to travel. They could keep food fresh and carry it with them over long distances. Travel, in turn, made trade possible, and the need for salt fueled commerce. Much of the exploration around the world has a salty flavor.

Salted fish loomed large in the European diet, so scouting out new fishing beds led, in part, to the exploration of the New World. First the Vikings, then the British, French, and Portuguese fleets fished in the North Atlantic and explored the Americas searching for salt to preserve their catches.

The history of war may seem unsavory, but it does have a salty side. Those devious Hapsburg dukes of the 14th century sold salt to the Swiss then used the money to make war against them!

Salt, or the lack of it, was also a strategy in the war between Holland and Spain. When the Dutch rebelled against Spanish rule in the 16th century, they successfully blockaded Spain's Iberian saltworks and that gave Spain a shove into bankruptcy causing her to lose the war.

Salt production also played a significant role in early America. The Massachusetts Bay Colony held the first royal patent to produce salt in the colonies and continued to produce it for the next 200 years. The Erie Canal was opened primarily to make salt transportation easier, and during

the Civil War, the Union captured significant Confederate saltworks and they refused to allow any salt to make its way South. The lack of salt kept the Confederacy from curing pork for rations. The hunger that Southern troops and their families at home endured was an important factor in the South's defeat.

Levied in 2200 B.C. by China's emperor Hsia Yu, the world's first tax was on salt. Chandragupta, who ruled India in 324 B.C., came up with the same idea. The Roman emperors put a tax on salt, and some salt taxes exist in Italy even today.

One of the most hated taxes was the French tax called the gabelle. As the French kings and their courts sought more money, the gabelle became a notorious example of taxploitation. From 1630 to 1710 the tax increased ten times over.

Eventually, every French citizen older than the age of eight was forced to purchase a weekly minimum amount of salt for a fixed price, forcing some into starvation since they couldn't afford both food and salt. To nobody's surprise, repeal of the salt tax became a leading cause of the French Revolution.

In colonial India, only the British government could produce and profit from salt production conducted by Indians living on the coast. Gandhi chose to protest this monopoly in March 1930 and marched for 23 days with his followers. When he arrived on the coast, Gandhi violated the law by boiling a chunk of salty mud. This march became known as the Salt March to Dandi. People across India began making their own salt in protest, and the march became an important milestone in the struggle for Indian independence.

Salt, however, is still fighting to win its independence from pepper.

Now let's close this paper with a few salty tidbits.

Aside from economics, salt also has cultural and religious significance. It has long been used in Shintoism to purify things, and Buddhists use salt to repel evil. In Judeo-Christian traditions, salt was used to purify people and objects, as an offering, and to seal covenants.

There are 30 references to salt in the Old and New Testaments of the Bible. One of the most famous is Lot's wife, who was turned into a pillar of salt, after disobeying God's command. A rock-salt pillar, the Gerat, stands today on Mount Sodom is known as "Lot's Wife."

During World War II, The Nazis hid plundered artworks in salt mines.

The Hotel de Playa in Bolivia, built in 1993, is made entirely of salt. It is located near one of the world's largest salt mines. Its walls, roof, tables, and bar consist of sodium chloride. During the rainy season, the hotel's walls are reinforced with additional blocks of salt. Guests are urged not to lick the walls.

While tossing a coin can bring you luck if you happen to be standing in front of a fountain, tossing salt over your left shoulder is considered good luck no matter where you are. Salt is considered so lucky that in some cultures, brides pour it into their shoes and parents rub it all

over their newborn babies. So next time you need a little luck, look no further than your kitchen table.

At its height in the 15th century, Venice was beautiful, powerful, famous, and fabulously rich. And though its wealth is often attributed to the trade in spices, the fact is that the bulk of those spices was salt.

Like a lot of history's great movers and shakers, Columbus owes at least some of his fame to salt. You think Ferdinand and Isabella sent him off to who-knows-where just to find a few bags of gold? Nope. Chris also had strict orders to bring home boatloads of salt.

In 1777, British troops captured the lion's share of General Washington's all-important salt supply. For a time, think Valley Forge, this starved the upstart Americans of a nutrient absolutely vital to their health. It also served as a reminder that if victory is sweet, defeat is sometimes very, very salty

In the early 1800s salt was four times as expensive as beef on the American frontier - it was essential in keeping people and livestock alive.

By 1812, Napoleon's soldiers were seasoned veterans of war. Turns out, they could have used a little more seasoning. Without enough salt in their diets to sustain them, thousands perished retreating from the Russian front.

So the next time you turn down the spice aisle at the local market just remember that the biggest area for any single spice is always reserved for salt.