

This weaving is about the history and importance of salt. My research focuses on its value in everyday life, as well as the history it has. I also researched the scientific aspects as well. The variety of types of salt is wide and the production of salt has a long history that is even important today.

The stretched canvas has been sewn and embroidered with various patterns. I created the design to emulate the microscopic study of this commodity. I was able to see how such small particles of mineral are structured. Salt takes the form of cubic crystals due to its atomic structure, shown as the squares inside the circular “lens” of the canvas. Overall, I wanted to give my subject dimension in the form of multiple shapes, colors, and textures, but in an abstract way.

I am drawn to pieces of art that utilize circles; they have a certain attraction and grace, and often hold a deep meaning. For my own art, I am experimenting with that concept. As a common household object, salt is considered not that important or interesting, but throughout history, many groups of people have valued it equal to gold. Although personal energy and effort are precious, by putting in the effort to look through the lens, true value can be revealed from behind a simple façade.

Eva

I was introduced to the kitchen at the beginning of my middle-school years. The first thing I learned to make was box mac-and-cheese, the kind that you mix cheese powder and milk for sauce. Then I learned how to roast tomatoes in the oven using vinegar and garlic. Eventually I worked my way up to take cooking and baking classes at the local cooking school in town. I learned that, to make and prepare a meal, a large variety of ingredients are necessary. Particularly in the baking classes, the teachers had us set out all the measured ingredients before we began to work. The culinary term is “mise en place” (French pronunciation: [mi zã 'plas]), French for “putting in place,” and it is a technique to boost efficiency and organization (*Mise En Place*). Looking back now, almost everything that I made in those classes, both in cooking and baking, used salt as a garnish or ingredient.

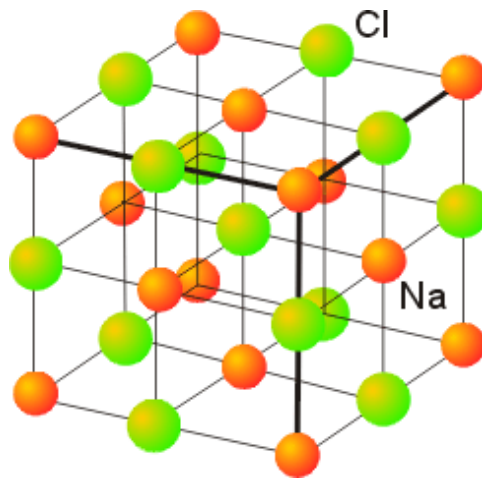
I live on the East coast in the city of Cambridge, Massachusetts. Every year in winter, it gets cold and snowy. The Charles River freezes over and thickens, and the temperature severely drops. But along with the crisp snow, we also gain a lovely layer of ice on the streets, on sidewalks, and around our homes. The city plows and uses road-salt on the ice to keep the roads safe for people to drive, but people also use their own personal salt for their walkways and driveways. The salt melts the ice that is constantly growing in places where melted snow has pooled and is also sprinkled on the bare ground for extra precaution. I can vividly remember seeing my snow-boots at the front door, covered with a layer of white splotches. The salty snow and ice water evaporated off my boots; only the salt is left, leaving behind a thin layer of texture.

The observations caused me to wonder where salt comes from and what other functions it has. People use salt for many things and it is so readily available, but many people also say that it is bad for the body and we should not eat the foods that have salt in them. So I began to question the ideas of purpose. Do we actually need salt? Is salt valuable? What determines the value of salt? And finally, what determines value?

The idea or concept that a value should always be represented as a number is inaccurate. There are many other ways to determine the worth of a thing, and some things are not even meant to have a fixed worth. For example, you cannot put a price on a handmade gift, or a person, or a memory. Then in contrast, looking at a material good, the price of an average box of salt is fixed. But often, there is more information stored in a thing that is seemingly simple than one might initially believe.

## **Composition**

When looking into the properties and abilities of a substance, it would be useful to have the knowledge of its molecular structure to further understand how complex it is. Sodium chloride, chemical formula  $\text{NaCl}$ , is also known as: table salt, rock salt, sea salt, and mineral halite. It is composed of equal parts sodium and chlorine and forms the cube-shaped crystals that we see as salt (Barry). Salt also has the ability to dissolve in water, evaporate, and re-form. It has been proven with research that salt has an important role, both in nature and inside living beings.



*Molecular Structure of NaCl*

Just like the human body needs water to survive, it also needs salt, but in moderation. Salt, or sodium, deficiency is also known as “hyponatremia” and occurs when there is not enough salt in the bloodstream. Sodium is an important electrolyte that monitors the water levels in and around the cells in your body. It monitors blood pressure, blood volume, osmotic equilibrium, and pH. It also plays a large role in connecting the nerve endings in the body so it can function normally, “a normal sodium level is between 135 and 145 milliequivalents per liter (mEq/L) of sodium. Hyponatremia occurs when the sodium in your blood falls below 135 mEq/L.” If too much sodium is taken into the body, it can lead to high blood pressure or an increased risk for strokes or heart failure (Mayo). Animals also need a balance of sodium, which is why domesticated animals such as cows are given salt licks, or blocks of salt, to keep them healthy. To prevent sodium deficiency, the body naturally creates a craving for salty food. It has built a natural alarm system for survival, leading early humans on a hunt for a way to satisfy their craving and keep them alive.

Salt is found in seawater, dry rock salt deposits, or other saline waters. All over the world there are large salt deposits in concentrated areas, both above and below ground, discovered hundreds of years ago. Salt mines reside underneath New York, Virginia, Poland, England, and Germany. Salt flats, deposits of salt from dried up prehistoric oceans, can be found in Utah, Bolivia, and Namibia, to name a few (*Salt, Tears of the Earth*).



*Salt flats in Bolivia, The Salar de Uyuni*

It takes practice and skill to collect and make salt, and climate influences a large part of the harvesting process. To produce salt, mining the dry salt, or evaporating saline water or seawater are the two best options, as well as the most frequently used techniques. The oldest mines found were discovered in Poland from the Hallstatt period in 1200 B.C. (*Salt, Tears of the Earth*). Mining salt is much like mining coal, both difficult and laborious. The process of producing salt from the sea is much different; it uses the power of heat or the sun. Boiling brine is also common form of production, “[Brine is] a solution of sodium chloride and water that may or may not contain other salts” (Barry). Simultaneously boiling and agitating the liquid creates salt cubes that settle on the bottom of the container which are then are collected, dried, and processed for future use. Finally, the technique of solar evaporation is the oldest method, and is still commonly used now. Evaporation ponds are used to reduce the beginning saltwater and turn it into the sea salt at the end of the process. All of these processes together have aided different groups of people in the task of mass-producing a necessary product for their survival. The properties linked to the substance have proved to influence us to where the world is now, economically, historically, and culturally. Because salt is not very expensive and the salt market is not a global market, or an extremely large market, it is still an extremely important market. Both supply and demand are high.

### **Consumption**

The most common association with salt is through food. The earliest humans acquired salt from the sources around them, either from natural salt concentrations or meat. Then, as hunting grew to a larger scale, so did the other products that come from domesticated animals. People living by the ocean received salt from the seawater, from small deposits of dried ocean pools or chewing seaweed (*Salt*). But the development of agriculture led to an increased population and a need for more salt. This led to the discovery of solar evaporation of seawater and the mining of salt underground. In China thousands of years ago, they invented a way to build wells more than 0.6 miles deep to reach underground pools of saltwater, which was a large technical advancement at the time (“Salt, 1800-1949”). Because people still use these forms of collecting, or an adaptation of a technique, these discoveries and inventions have proven to be beneficial to the development of civilization. The human population was able to grow, also allowing cultures to further spread out and develop.

Before the invention of refrigerators, salt was crucially important for the preservation, or curing, of meats and fish, to keep them from rotting. Meat spoils because bacteria need water to grow, and fresh meat provides the perfect host. Salt inhibits the growth of microorganisms that would spoil the meat, as well as slows down the oxidation process by drawing out the water in the cells of the meat through the process of osmosis. It is possible to cure meat, both by dry salting and using salt brine. Dry salting can also be called “corning” because the Middle English word “corn” could refer to both grains of salt and cereal grain (Jorgustium). It is a process where meat is covered in coarse pellets or “corns” of salt and then left to cure. Using salt brine involves making the brine and submerging the meat in the liquid until cured. The discovery of preserving food allowed people to leave their food source for longer periods of time; for example, in the shipping industry, it was especially important because the sailors were given salted pork, fish, and beef as their main food source. The food was packed in barrels, sometimes filled with salt, and made to last for months (Dash). To have that supply greatly simplified their problem of food storage and numbers.

From Salzburg, Germany, to Greenwich, England, to Salt Lake City, Utah. We name all of the places that salt has been found, making them “salt making towns and cities.” When the Roman military existed, the soldiers were paid in salt because it was so special, giving roots for the word “salary.” The Latin root “sal” means salt, like sausage, salami (salted meat), sauce, and salvation (people were saved from starvation) (*Big History*). The need for salt was once restricted to the expansion and interaction of people around the globe; but with the problem solved, exploration, travel, and trade became easier.

## Religion

There are many superstitions involving salt such as: spilling salt is an evil omen; throwing it over your left shoulder will keep away bad luck; or bringing a bowl of salt into a new home will bring good luck. But all of these superstitions derive from the amount of importance people used to place on salt and its properties. Before commercial production, it was both expensive and scarce, so every bit was precious. Spilling salt was bad because it was a luxury; it was costly, so it came to signify future loss. It was also considered pure, because its ability to preserve was so important. Acting as a barrier, the purity of salt drives away the devil, evil spirits, and bad luck (Rabinowitz). This particular belief carried itself into various different religions.

In Judaism, salt is an essential part of life, symbolism, and ritual. It was a required requisite part of all sacrifices: “The extent to which salt was used in the sacrifices may be seen in the statement in Josephus (Ant. 12: 140) that Antiochus the Great made a gift of 375 medimni (bushels) of salt to the Jews for the Temple service, and there was a special Salt Chamber in the Temple (Mid. 5:3)” (Rabinowitz). The cleansing and purifying powers of salt are reflected in Elisha's act of purifying the bad waters of Jericho by casting salt into the springs (II Kings 2:20, 21) and the custom of rubbing a newborn infant in salt. As a condiment, “Salt was an essential element of the Jewish table, and it became customary to put salt on the bread over which grace before meals was recited. A Yiddish proverb has it that “no Jewish table should be without salt,” which is in accordance with the homily that makes one's table “an altar before the Lord” (cf. Avot 3:4). The ability of salt to absorb blood (Hul. 113a) is the basis of the important laws of koshering meat so that all blood be removed” (Rabinowitz).

In other places, salt is identified with a placeholder or being. The Mexicans showed their respect for salt in the goddess Huixtociatl. She was the sister to the rain-gods, but they argued together. In their anger, the rain-gods pushed her into the saltwater, where she invented the art of panning the material and thus became the goddess of salt (Goldwest Smith).

In Egypt, salt was used in a specific ritual that would preserve a human body for hundreds of years. Mummification was the norm for deceased pharaohs, nobility, officials, and specific animals. During the embalming process, they would take all the moisture out of the body to prevent decay and then wrap it. To dry out the body, they used a strong mix of chemical compounds sodium chloride, sodium carbonate, sodium bicarbonate, and sodium sulphate referred to as “natron,” both internally and externally (*Egyptian Mummies*). The belief in the abilities of salt has shown to influence the cultures and religions they take part in. Each culture uses salt in their food and as a preservative, but many use them in ceremonies and traditions as well. They value salt in more ways than one, and that reliance has lasted for centuries.

## Taxes

The powers of salt, and various connections with it, led it to develop a large monetary value. During a period of time, it matched the worth of gold, ounce to ounce. Salt taxes have

previously been implemented in multiple countries, such as India, Russia, and France. In 200 BC, China was building the longest defense fortification ever built. When finished, the Great Wall will reach over 3,000 miles long. But because it was such a large undertaking, requiring the use of millions of laborers and materials, the emperor was having trouble paying for it. Through the advice of his advisors, salt was taxed to raise the money needed. They reasoned, because salt is so valuable to the people, they will continue to buy because they have no other source to get it from (*Big History*). The Great Wall was eventually completed by using a large amount of money gathered from the people themselves, rather than from the emperor.

Some countries were able to cope with a heavy salt tax; in other countries, citizens were pushed too far by the government. In Europe, the earliest salt tax was during the Roman era; it was made a state monopoly to assure supply. The tax later reemerged, particularly in France, where, described by American historian Robert P. Multhauf, it developed into one of the more complex taxing systems:

The intention then was to levy the tax uniformly on all of the provinces, but as the French nation was being put together it became necessary to accommodate to existing practices. Brittany long had no tax; and there was one rate for Normandy, where seawater continued to be boiled for salt, and another for eastern France, where salt was supplied from brine wells. In the sixteenth century some regions incorporated into France were able to bargain for exemption from the gabelle and became *pays exempts*; others purchased exemption and became *pays rédimés*. It was worth it, for the price of salt was sometimes over a hundred times the cost of production, and everyone was required to purchase a fixed amount. It was indeed "a convenient article for fiscal management. (Multhauf)

Although it worked for the government, the people eventually became tired of having no voice in the matter. They paid unfair taxes to fund Charles of Anjou to help him continue his conquest on the Kingdom of Naples, whether they wanted to or not. In outrage, the people added the expensive salt tax to the list of grievances, fueling the French Revolution.

Following that, in the 1920s, India was under British rule. Viceroy Lord Reading gave India fiscal autonomy, which resulted in the Tariff Board, under Indian control, abolishing the cotton excise. This created a loss of income for the British government, who then decided to double the salt tax. The poorest people were no longer able to make salt for themselves or for others. This conflict led to Mohandas Gandhi's 240-mile Salt March in 1930. On April 6<sup>th</sup>, Gandhi and his followers reached their destination and broke British law by making salt (Bakshi). His organized and nonviolent act of civil disobedience inspired others, nationwide, to do the same. Protests, boycotts, and demonstrations led up to the independence of India from British rule seventeen years later in 1947. Salt is crucial to life, and when those rights and other human rights are taken away, there is imbalance. Although all salt taxes have now been abolished, the taxes that have been previously placed on salt have been greatly influential to both the people and government of those eras.

## **Conclusion**

I find it would be impossible to live without consuming or using salt in any way. The number of uses for salt is infinite; it is in bread, soap, and ice-cream. It is used on icy roads, as bath-salts, and to preserve foods. In the many areas of religion, history, and daily life, salt's influence is innumerable. Salt has left an impression on earth, both in the ground itself and in the

people who live on it. Recently, I made salt from the Napa River by boiling the water that I collected until just the salt was left. It took two hours to make 1/3 cup of salt. During the process, I thought about how, even after all these years, our dependence on salt and salt production has not changed at all. Salt is still crucial to the survival of life, but now with a steady market, people have shifted their attention. New inventions are given time and energy because people believe new technology is crucial and hope to further the quality of life.

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