

The Evolution of the U.S. Salt Industry as a Partner in World Trade

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ABSTRACT

The United States is presently the largest salt-producing nation of the more than 170 countries in the world. Although the U.S. salt industry is relatively young compared with those of other countries that have been making salt for many hundreds of years, many events shaped the evolution of the United States as a major participant in the world salt trade. The history of salt making in the United States can be traced to the English, Dutch, and other nationalities who immigrated to the New World with their skills, as well as the Native American Indians who inhabited the lands and were aware of the bountiful salt resources of the land.

THE BEGINNING OF A COUNTRY AND A SALT INDUSTRY

Colonial America

Although there is archaeological evidence to show that there was prehistoric use of salt in the southwestern part of the United States, the European colonization of America began on its eastern shores. The first English settlement in the New World started in May 1607 with the arrival of Captain John Smith and 105 colonial settlers at Jamestown, Virginia. The first salt used in the New World was delivered as ballast in the hulls of sailing ships arriving from England. Because the price of this salt soon became expensive and the demand for more salt for preserving fish and meat increased, John Pory, Secretary of the Colony, sent Lt. Craddock and twenty men to construct a salt works on Smith's Island, near the tip of Virginia's eastern shore. This was in June 1614. Makeshift shallow wooden vats were erected along the beach. Records indicated that Indians from the village of Accomak were employed at the operation. Using seawater in a solar evaporation process that they had seen in use in England, the colonists made the first solar salt in the United States. Although the salt was coarse and had a sharp taste, it nevertheless was useable. This was an important step for the American colonists in their effort to become independent from England. This historic development was accomplished seven years before the arrival of the Mayflower and its settlers at Plymouth, Massachusetts (Wood, 1956).

Salt production in New England began in 1621

under a grant made by the Council of Plymouth. Salt works were erected at the mouth of the Piscataqua River, which is at the present location of Portsmouth, New Hampshire. The salt was used for the fur and fishing industries that developed along the New England coast. In Massachusetts, salt making began in about 1622 under the direction of a salt-maker sent directly from England. Other salt operations were developed at Cape Ann and Cape Cod; however, the New England climate was not favorable for the solar evaporation of seawater, and the amount recovered was not sufficient to meet the demand of the fishing industry. Dried and salted fish became one of America's most important export commodities. In the early 1600s, British fisheries rose in importance, and in 1675, English vessels carried about 23,000 metric tons of codfish caught from the New England waters (Nicholson and Mitchell, 1954).

Around this time period, artificial heat was introduced to increase the quantity of salt made from seawater. Seawater was pumped by hand, or by the use of windmills, to large open-air kettles, in which the water was boiled off leaving the salt behind. Unfortunately, the salt usually was of poor quality, and the process consumed a tremendous amount of labor, time, and fuel. About 946 liters (250 gallons) of water were required to produce one bushel of salt that weighed 25 kilograms (56 pounds).

In retrospect, the solar and mechanical evaporation techniques used in Virginia and New England were crude and not very successful when compared to today's standards; however, the colonial quest for salt continued inland.

Salt and native American indians

The existence of salt was known for many generations before the first settlers landed in the New World. Native American indians knew the location of salt springs from where they hunted the animals that came to satisfy their salt hunger from the saline waters or the "salt licks". One of the earliest references to salt springs dates back to 1653 when Father Simon LeMoyne, a French missionary, visited the Onondaga Nation, members of the Iroquois Confederacy, near Onondaga Lake in New York (Stevens, 1990). The indians showed Father LeMoyne a spring they considered contained an evil spirit because it had a bitter taste and little plant life grew near it. LeMoyne recognized the salty taste and collected some brine and later evaporated it in a kettle, thereby producing the first salt in New York. He wrote of this historical discovery but the actual commercial use of the brine did not begin for another 135 years later.

In the latter half of the eighteenth century as colonial pioneers advanced westward in the unsettled territories beyond the Appalachian mountains, salt was a necessity that had to be transported on pack horses at the expensive price of \$6 to \$10 per barrel (one barrel equals 127 kg or 280 pounds). New sources of inexpensive salt had to be obtained in order for the pioneers to survive. These sources, however, were located on the lands owned by the indians. The salt industry in Ohio and Virginia (the western region was later named West Virginia) owe their origin to white captives held as prisoners by Indians.

In 1755 at Buffalo Lick on Campbells Creek on the Kanawha River near present day Charleston, West Virginia, Mrs. Mary Draper Ingles aided her indian captors in making salt for three months. After her escape, she returned to her home (near the present town of Saltville) and described to the settlers how the indians produced salt from the springs (Cornwell, 1985). It was not until the end of the Indian Wars in 1797 that commercial production of salt along the Kanawha River began. In 1794, a similar event occurred in which a white man that had been held captive described how indians made salt from a salt spring along the Scioto River, near the present town of Jackson, Ohio (Pritchard, 1985). Salt production in Ohio also began in 1797.

ONONDAGA, SALTVILLE, AND KANAWHA — THREE CENTERS OF U.S. SALT PRODUCTION

Prior to the Revolutionary War that began in 1776, the American colonies were still dependent on imported salt. Portugal and England were important sources of salt. Many English vessels carried salt as

ballast, which was unloaded and sold, and returned to England loaded with goods from America. Foreign trade was interrupted by the War with England causing many salt works to be established from Maryland up to Massachusetts. The salt works at Shelter Cove, located north of the mouth of the Toms River in New Jersey, were especially important. This site produced a large share of the salt used by the colonies for food preservation and in gunpowder manufacture. The salt works were virtually destroyed by the English military in March 1778 but were rebuilt by 1779 (Monteith, 1990). After the Revolutionary War, the new country, the United States of America, began its independent search for self-sufficiency in salt.

Although there were several small salt operations scattered across the country, the majority of their output was consumed by local communities. Very little information exists on the history of most of these salt works. On a national level, there were three locations that rose to become major salt-producing districts and the foundation of the present U.S. salt industry. These locations were Onondaga Lake, New York; Saltville, Virginia; and the Kanawha Valley of West Virginia as shown in Fig. 1. Figure 1 also shows the approximate range of market distribution for each of the three centers of salt production.

Onondaga Lake, New York

A few years after the war, the State of New York in 1788 acquired the region around Onondaga Lake from the Indians "for the common benefit of the people of the State of New York and the Onondagas for the purpose of making salt". Nathaniel Loomis has been credited with making the first commercial inland salt made by a non-Native American (Naramore, 1980). In his first season, he made 500 bushels (13 tons) of salt, which sold for \$1 per bushel.

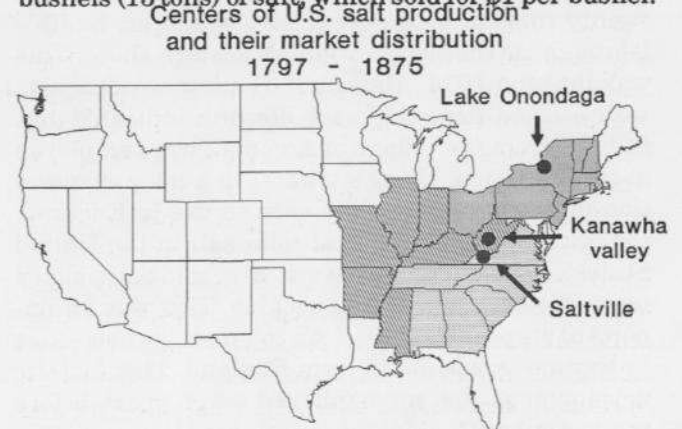


Fig. 1. Centers of U.S. salt production and their market distribution.

Other people began evaporating brine obtained from shallow excavations in open kettles. Salt sold for \$1 per bushel in the fall of 1789 but by 1791, Onondaga salt could be purchased sixty miles westward for only 50 cents. Soon, the salt industry expanded to the point where the State assumed control of the industry in 1797 when the legislature passed laws governing the utilization of the brines on the Onondaga Salt Springs Reservation. Salt had become a big business. As stated earlier, salt production had also begun at the same time in Virginia.

By 1800, the U.S. population had grown to about 5.3 million people compared with only 4,600 in 1630. Although certain historical trade statistics are not available, it was reported that 2.9 million bushels of salt (75,642 tons) were imported in 1797 while salt production in New York that year amounted to 25,474 bushels (647 tons). By 1800, imports rose 15% to 3.4 million bushels (86,918 tons) while production increased 50% to 50,000 bushels (1,270 tons). The growth in population caused a rise in the demand for salt, and the U.S. salt industry was born.

Despite the increase in the number of domestic salt operations, foreign imports were relatively strong. One important source was Liverpool, England, where the salt was extremely pure. Imports of salt from Liverpool had declined from 2.5 million bushels (62,140 tons) in 1807 to only 394,541 bushels (10,022 tons) in 1812. Although the War of 1812 with England was responsible for most of the decline, imports had already started to decline as of 1811. By 1826, import agents in New York City who represented foreign salt manufacturers realized the importance of the Onondaga salt industry and in the other States. Fearful that domestic production would interfere with their import business, they began an active campaign of propaganda in an attempt to prejudice the quality of domestic salt in the minds of the public. It was stated that Onondaga salt was inferior for packing provisions compared with imported salt, especially that from Liverpool, England. U.S. Government officials had even become convinced from the propaganda that foreign salt was better. It was not for several years later that the Onondaga salt manufacturers proved by a series of tests that Onondaga salt was equal, if not superior, to the imported type for military and naval stores. Even as late as 1918, several U.S. packers continued to import English salt because they believed they could not get satisfactory results without Liverpool salt. Four districts comprised the Onondaga Salt Springs Reservation; Salina, Syracuse, Geddes, and Liverpool. Reportedly, Liverpool may have been selected as the village name in honor of the English port so that Liverpool, New York salt would be con-

sidered synonymous with the excellent English product. It has also been suggested that Liverpool was chosen as a name to deceive customers into believing their salt really came from Liverpool, England (Naramore, 1980). The Liverpool Salt Company, which was a California corporation, started producing salt in Colorado in 1884. They may have had the intent to also misadvertise their product to compete with imports of salt entering San Francisco from Liverpool, England.

The salt industry continued to grow. By mid-century, annual production exceeded 4 million bushels (101,605 tons), which was shipped mainly to markets in the northern States, the upper Mississippi River region, and to adjacent Canada. In 1862, 316 salt boiling blocks were in operation along Onondaga Lake. Although some blocks had about 100 kettles, the average block had 50 to 60 kettles, each with a capacity of 454 liters (120 gallons). Approximately 7.57 million liters (2 million gallons) of brine could be boiled in 17,000 kettles. Laborers toiled 7 days per week, 12 hours per day in 90 degree heat from late April through November making solar salt. In 1862, 7 million bushels of salt were produced, using about 150,000 cords of wood to fuel the boiling blocks. Extensive farming in the region reduced the quantity of wood available for fueling the boiling blocks. During the Civil War, the price of wood and coal soared, thereby making the salt boiling process too expensive to economically continue. Experiments in solar evaporation were first tried in 1821 but abandoned until the Civil War.

The affairs of war and business often overlap. During the Civil War, one member of the board of the Onondaga Salt Company was the speaker of the house in the state legislature in Albany, and another board member was on the House Ways and Means Committee in the U.S. Congress in Washington, D.C. Because of their influence, lobbyists for the salt company had little trouble obtaining exclusive rights to the large salt deposits near Syracuse. In addition, they succeeded in passing a federal tariff so high that salt imports were virtually eliminated. The Onondaga Salt Company then doubled the price of its salt and collected enormous profits (Jackson, 1985).

By 1880, more than 50,000 covered vats were in operation in the area. After the beginning of the twentieth century, the salt content in the brine became noticeably weaker. To continue to produce salt meant more evaporation was required, which resulted in greater fuel costs and less profit. Between 1888 and 1926, when the last salt operation closed, solar salt was the primary type of salt made by the Onondaga manufacturers. Competition from newly developed rock salt deposits in New York and

Kansas and other solar salt operations in the West also contributed to the decline in the Onondaga salt industry. In the early 1900s, 30 companies produced salt in New York. Overproduction, poor marketing practices, price cutting, and higher foreign imports, resulted in unstable conditions within the State salt industry. Over time, the less economic operations closed and the remainder of the industry stabilized.

Saltville, Virginia

Saltville is located in the extreme western part of Virginia, near the borders of Kentucky, West Virginia, and North Carolina. This region was first surveyed on December 12, 1748 by members of the Patton-Walker Expedition, which was returning from the discovery of the Cumberland Gap. The area had various names throughout time; Buffalo Lick, Little Lick, Salt Lick, Salt Works, and eventually, Saltville. Saline springs were found in the valley along with the fossilized remains of extinct animals, who gathered at the salt deposit millions of years earlier.

Commercial production of salt began in 1782 by Colonel Arthur Campbell, whose uncle was on the original 1748 expedition. As mentioned earlier, Mary Ingles had learned how to produce salt while held captive by the Indians in 1755. Campbell's operation consisted of wells from which brine was obtained, and furnaces with camp kettles that had a capacity of only 30 to 45 liters (8 to 12 gallons) to boil the brine. The operation was known as the Preston Salt Works in 1797. In 1795 William King, who was an employee of the salt works, purchased a 61 hectare (150 acres) tract of land on the western part of the valley to begin a new salt operation. In 1799, he sank a shaft with a diameter of about 3 meters to the underlying salt deposit 61 meters (200 feet) below. About every 7.6 meters down, log platforms were constructed in half of the shaft to serve as resting areas and safety zones for the workers. Unfortunately, the bottom of the shaft was near the water table. Water soon began flooding the shaft but not before he extracted 121 liters (32 gallons) of concentrated brine which made one bushel of salt. Although his shaft could only be used as a brine well, King has the distinction of digging the shaft of the first salt mine in the nation (Kent, 1955). Production of brine from this site continued until 1892.

Salt production from the Preston Salt Works and the King Salt Works soon became more than the market could bear. Competition would only ruin both parties. An agreement was reached in 1801, when King leased the Preston works for ten years at \$12,000 per year. The two estates were operated jointly for the next six decades. Between 1840 to 1850, competition from other areas reduced the sales

price for salt from \$1 per bushel to 12-1/2 cents per bushel. The majority of the salt produced in Saltville was shipped along the Holston River and sold mainly to the agricultural areas of southern Virginia, Alabama, Georgia, North and South Carolina, and Tennessee. Because of its location the Saltville salt industry was fairly well insulated from import competition; however, it did encounter some competition from salt entering ports along the southeast.

Figure 2 shows a sketch taken from an 1857 issue of *Harper's Monthly* magazine. The scene shows the inside of a typical salt boiling block. The incoming brine, transported in hollow wooden pipes, was fed to iron kettles and boiled in a double-row arched furnace that was 30 to 45 meters long. The crystallized salt was dipped out manually with big ladles, and dumped into woven mesh baskets that allowed the residual water to drain. During the Civil War, the saltworks became very important because Virginia was part of the Confederacy. The only other major salt operations in the country were in the North. Saltville became the salt capital of the Confederacy. Without a continual supply of salt, the Confederacy was in trouble. The Union took control of the seas, so salt imports to the South were eliminated. Thirty eight furnaces operating more than 2,600 kettles were in operation during the war. Production rose from 250,000 bushels per year before the war to about 4 million bushels in 1864. Salt sold during this period for \$25 per bushel. Union soldiers destroyed the salt works in December 1864 and temporarily ended Saltville's salt industry (Marvel, 1991).

Although the war virtually destroyed the salt industry, salt would continue to be an important commodity to Saltville. On July 4, 1895, the Mathieson Alkali Works began producing synthetic soda ash by the ammonia-soda process, and chlorine and sodium hydroxide, all of which use salt in their manufacture. The facility continued to operate until 1971, ending the history of salt production in Virginia.

Kanawha Valley, West Virginia

The Buffalo Lick in the Kanawha Valley, where the Indians took Mary Ingles and forced her to make salt from the springs, would become another major domestic source of salt. In 1785, a pioneer named John Dickinson settled in the Kanawha Valley of Virginia (now West Virginia) and acquired the land that included Big Buffalo Lick. He later sold 202 hectares (500 acres) of the property, including the Lick, to Joseph Ruffner, whose sons would later be credited with the beginning of earth boring technology in America in 1806 while drilling for salt brine in Kanawha. The first commercial salt production in West Virginia is credited to Elisha Brooks,

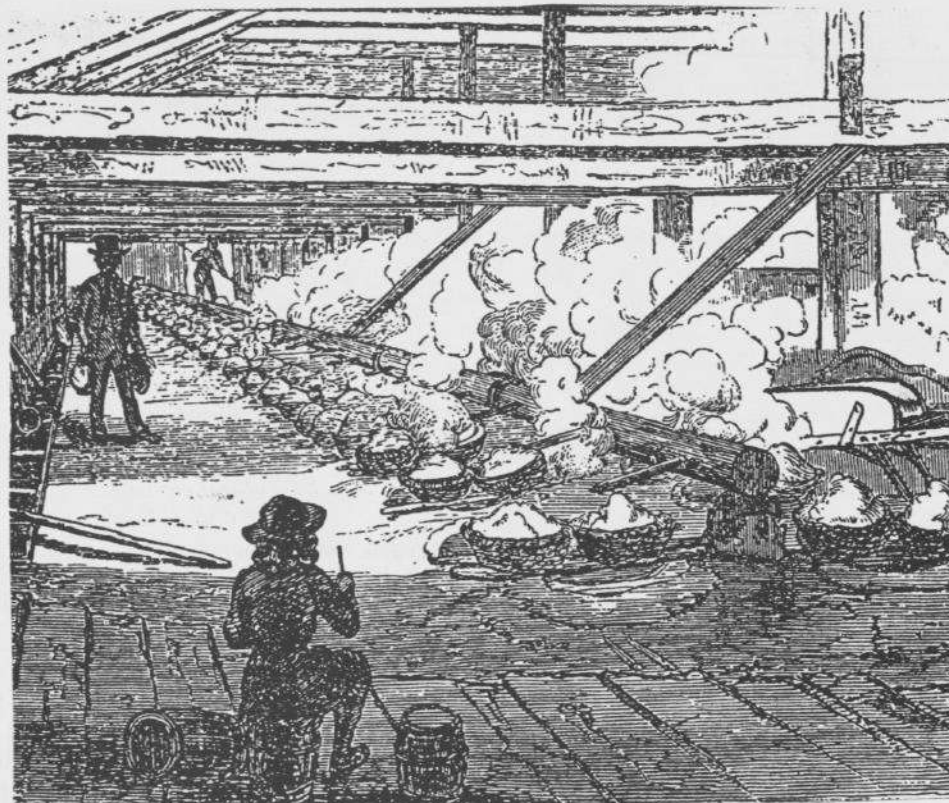


Fig. 2. Inside of a salt-boiling block in Saltville, Virginia in 1857.

who learned how to boil salt and construct a salt works from reading about the efforts of salt boilers in Onondaga Lake in New York (Eskew, 1948). The salt he produced was reddish, because of the iron impurities. It took 1,893 liters (500 gallons) of brine to produce 1 bushel whereas the Ruffners could make the same quantity from only 757 liters (200 gallons), which was obtained from a deeper depth. Another Ruffner brother improved on the drilling process. In 1809, at a depth of 125 meters (410 feet), he encountered a stronger brine that yielded 1 bushel of pure, white salt from only 170 liters (45 gallons) of brine.

Thirty furnaces were in operation in Kanawha by 1817. In that year, 700,000 bushels (17,781 tons) of salt were made. The peak year for salt production was 1846, when output reached 3.2 million bushels (81,922 tons). Although the Kanawha salt industry was one of the three large salt-producing regions of the country, it nevertheless was not immune from the threat of import competition. Most of the Kanawha salt was destined for consumers in the middle South and Southwest; all served by the Ohio and Mississippi Rivers and their tributaries. However, ships arriving from the West Indies unloaded their salt cargoes in New Orleans for sale to customers up the river.

THE INDUSTRIAL REVOLUTION

By 1880, there were 268 salt-producing facilities operating in 15 States across the country. Salt production was about 757,500 tons. Michigan was now the largest salt-producing State, followed by New York, Ohio, and West Virginia. Imports that year reached nearly 870,900 tons whereas exports were only 563 tons. Domestic salt production was now rising faster than imports. By 1881, imports exceeded one million tons for the first time. In 1882, production for the first time exceeded the level of imports for the year. Asiatic Russia, the Hawaiian Islands, British Columbia, Colombia, and Nicaragua were the major countries the United States exported to during this period. England, the West Indies, Italy, and Portugal were the main sources of imported salt, primarily solar salt. Competition from imports, because of their inexpensive ocean freight rates, and high production costs for some domestic producers, forced several U.S. companies to close or consolidate operations.

The industrial revolution that had spread from Europe to the United States in the latter half of the nineteenth century, brought many enterprising European businessmen and scientists to the United States to take advantage of the awaiting opportunities. Some of their discoveries and ideas would pro-

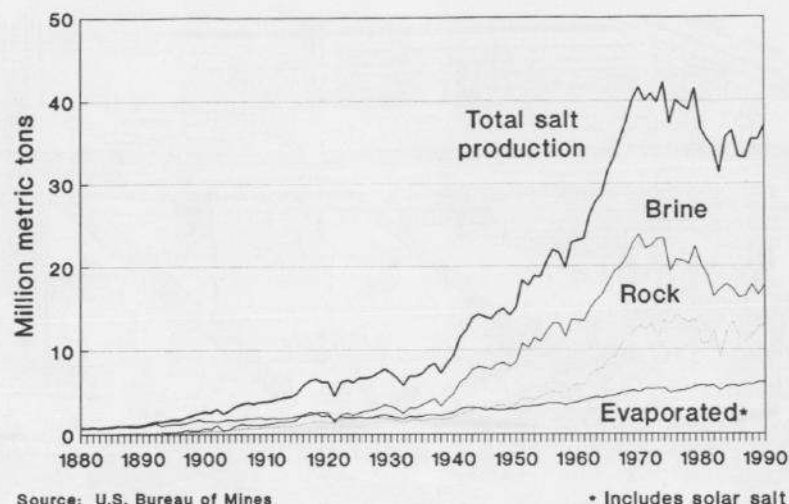


Fig. 3. Historical U.S. salt production. 1880-1990.

duce new uses for salt in the United States.

Aside from its traditional use for preserving fish and meat, salt was discovered to be an important feedstock to make a variety of chemicals. One important chemical was synthetic soda ash made by the Solvay process, which had been developed by Ernest and Alfred Solvay in Belgium in 1865, that soon replaced the antiquated LeBlanc process. The first Solvay plant in the United States was built in 1884 by the Solvay Process Company at Syracuse, New York. It was located near the shore of Lake Onondaga, where a major sector of the U.S. salt industry was born one hundred years earlier.

Near the turn of the century, commercial production of chlorine and sodium hydroxide began from the electrolysis of salt. This was the beginning of a new industry that would consume enormous quantities of salt for the manufacture of many hundreds of consumer products for the next one hundred years. Figure 3 shows the trend of U.S. salt production between 1880 and 1990 for each type of salt. The rise in salt production is attributed to the birth of the chloralkali industry in the United States. Because the energy cost for manufacturing chlorine was so high, low-priced salt was required to be competitive. Chlorine facilities were built near salt deposits, which were solution mined to obtain the necessary salt feedstock. Salt had become a very essential mineral for use by the domestic chemical industry.

THE WAR YEARS

After the beginning of the twentieth century, the United States consumed most of the salt that it produced, except in certain regions of the Atlantic coast where inexpensive salt continued to be imported from the West Indies and Europe. In 1914,

35% of total imports originated from the West Indies. With the start of U.S. involvement in World War I in 1917, imports declined more than 50% to 59,000 tons compared with 111,000 tons of the previous year. Although the War ceased our import business with Germany and Italy, which historically were two of our major import sources, imports from England, Mexico, and the Dutch West Indies increased. The availability of ships because of the War also contributed to reduced imports and forced the United States to rely more on itself. About one-half of U.S. exports went to Canada, with Cuba, Mexico, and Panama being other important customers.

Despite the shortages of labor, railcars, and various supplies, domestic salt production was strong. Even the conserving of fuel, with the closing of factories on Mondays during the first several weeks of 1918 by the Fuel Administration, had little effect on the output of domestic salt. After the War, trade relations resumed with most nations. Relations with Germany were reestablished as early as 1919; however, total U.S. imports by that time would remain less than 100,000 tons annually until 1953.

The growth in U.S. population meant a growth in the demand for consumer products. Soda ash consumption for glass making and detergent manufacture increased substantially so that by 1939, 17 facilities were producing synthetic soda ash or mining natural soda ash from deposits in California. Because each ton of synthetic soda ash uses about 1.7 tons of salt, production of salt climbed substantially during this time.

The beginning of World War II caused an increase in the demand for chlorine, and therefore salt. Chlorine was used in high-octane gasoline for tanks and airplanes, explosives, parachutes, antifreeze agents, and various synthetic rubber products. Heat-

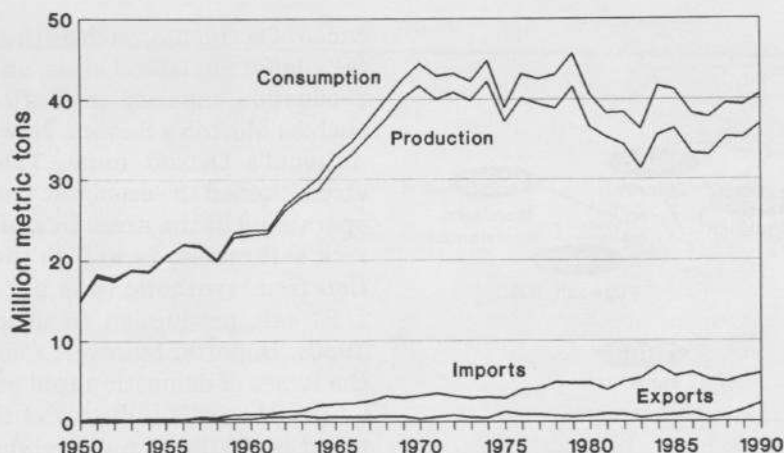


Fig. 4. U.S. salt consumption, 1950-1990.

relief and water purification tablets and insecticides were used by the troops in the jungles, all made from salt and chlorine. The level of salt imports during the War decreased, especially from countries that shipped salt by ocean vessels that were vulnerable to enemy submarine attack. During these years, the United States imported the majority of its salt from Canada. The war had also destroyed several foreign salt operations, especially those in Italy and its African colonies, with whom the United States had historically imported from. After the end of World War II, chlorine and soda ash consumption fell as well as rock salt and evaporated salt for synthetic rubber manufacture.

THE LAST HALF OF THE TWENTIETH CENTURY

Aside from the growing use of salt for chemical manufacture, the use of salt for highway deicing began to increase after the end of World War II with the construction of a national road and highway system. To keep the highways open and safe during winter-time use for the growing industrialized and mobilized society, rock salt was applied as an effective and inexpensive deicing agent. By the mid-1950s, the demand was so great that domestic production of rock salt and imports of rock salt from Canada increased dramatically. Imports from Canada in 1954 were 794 tons; however, imports in 1955 reached more than 130,000 tons. Although the United States historically had exported more salt to Canada than what it had imported, the situation reversed and has continued ever since. Figure 4 shows the trend of U.S. salt trade, production, and consumption (production + imports - exports = consumption) between 1950 and 1990. The chart shows the gap between production and consumption has grown apart steadily since the early 1960s.

New rock salt operations in Canada were soon developed to serve the Northern snow belt in Canada and the United States; Ojibway, southern Ontario in 1955, Goderich in Ontario in 1959, and Pugwash in Nova Scotia in 1959. Also in 1959, Morton Salt Company opened a rock salt mine near Painsville, Ohio; the first rock salt mine constructed in 25 years. Figure 5 shows some of the start-ups of the major foreign operations that have influenced the import market of the United States. By 1960, U.S. salt production had doubled over that of 1950 with the United States comprising 27% of world production. Fifty-four companies operated 89 plants throughout the country. Most of the increase in salt production was in the form of salt brine for consumption by the synthetic soda ash industry.

Aside from the development of new salt production operations and the expansion of existing ones, the 1960s were also a time period in which the major U.S. salt companies expanded their businesses by establishing operations overseas. International Salt Company began constructing solar ponds in the Netherlands Antilles in 1965, and three years later in 1968, Diamond Crystal Salt Company began solar salt production in the Bahamas. In addition, Morton Salt Company began to acquire minority ownership in a Canadian rock salt company by 1965. Morton had been the first U.S. salt producer to acquire a foreign base of operations by purchasing the solar salt operation at Inagua in the Bahamas in 1954. These companies, which had been major rock salt and vacuum pan salt producers within the United States, diversified their product lines by entering the solar salt business. A few U.S. salt companies now controlled the flow of most of the salt imported into the United States. Although their domestic operations continued to serve the interior sections of the country, their foreign operations supplied consumers along the

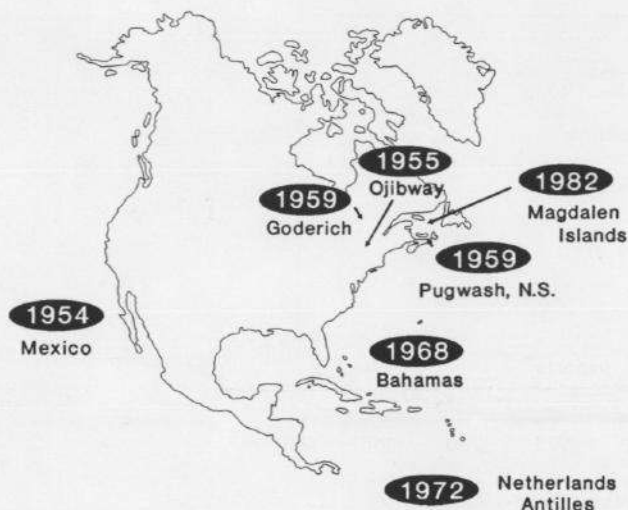


Fig. 5. Start-ups of foreign sources of U.S. salt imports in the mid-20th century.

perimeter borders and coastline of the nation. Caribbean salt usually could be produced, shipped, and sold very competitively in the United States. The United States, which had relied so heavily on imported salt through most of its history, now had a salt industry that could supply a portion of domestic requirements from its foreign subsidiaries.

Salt company expansions, closures, and consolidations marked the 1970s. U.S. salt production in 1970 reached 41.6 million metric tons, an all-time record high that has never been broken. Salt trade remained strong with imports always exceeding the level of exports. Japan had been the largest market for U.S. exports throughout the previous decade; however, in 1973, Japan became a joint venture partner with Mexico, and U.S. salt exports to Japan ended.

The Arab oil embargo that occurred in October 1973 adversely affected several energy-intensive industries, one of which was synthetic soda ash. Higher energy costs, environmental problems, and competition from natural soda ash sources, contributed to the closure by 1979 of seven of the eight synthetic soda ash plants that were in operation during the 1970s. Ironically, the last facility to close was also the first one constructed in 1881 at Syracuse, New York. It continued to operate until January 1986. The demise of this chemical industry resulted in the significant loss in salt production. The energy crisis also directly affected the salt industry, especially in vacuum pan salt production, in which the average value per ton doubled between 1973 and 1978.

During the 1970s and 1980s, there were several closures of domestic rock salt mines in Louisiana, Michigan, and New York. These closures were be-

cause of accidents, such as the loss of Diamond Crystal's Jefferson Island mine, and from excess regional production capacity that affected competitiveness, such as Morton's Seneca, New York mine and International's Detroit mine. The loss of these mines strengthened the economic position of the remaining operations in the area. In addition, the loss of these rock salt mines, as well as the loss of brine production from synthetic soda ash manufacture, caused U.S. salt production to drop significantly in the 1980s. Imports, however, remained strong to offset the losses of domestic supplies.

The U.S. salt industry of the 1990s has restructured itself through consolidations, name changes, and foreign acquisitions to become a more integrated industry competing in the Western Hemisphere. In 1990, seven companies of the U.S. salt industry represented about 52% of total salt imported into the United States through 36 customs districts from 27 countries. The remainder was brought in by a few chlorine manufacturers and several direct buyers and distributors. Eleven domestic salt-producing companies accounted for approximately 79% of the total U.S. exports to 61 countries.

In 1997, the U.S. salt industry will celebrate 200 years of commercial salt production. Many events and issues have occurred during this time period that influenced the development of this industry. The United States has firmly established itself as a leader in world salt production in the twentieth century, and a willing partner in international trade into the next millennium.

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