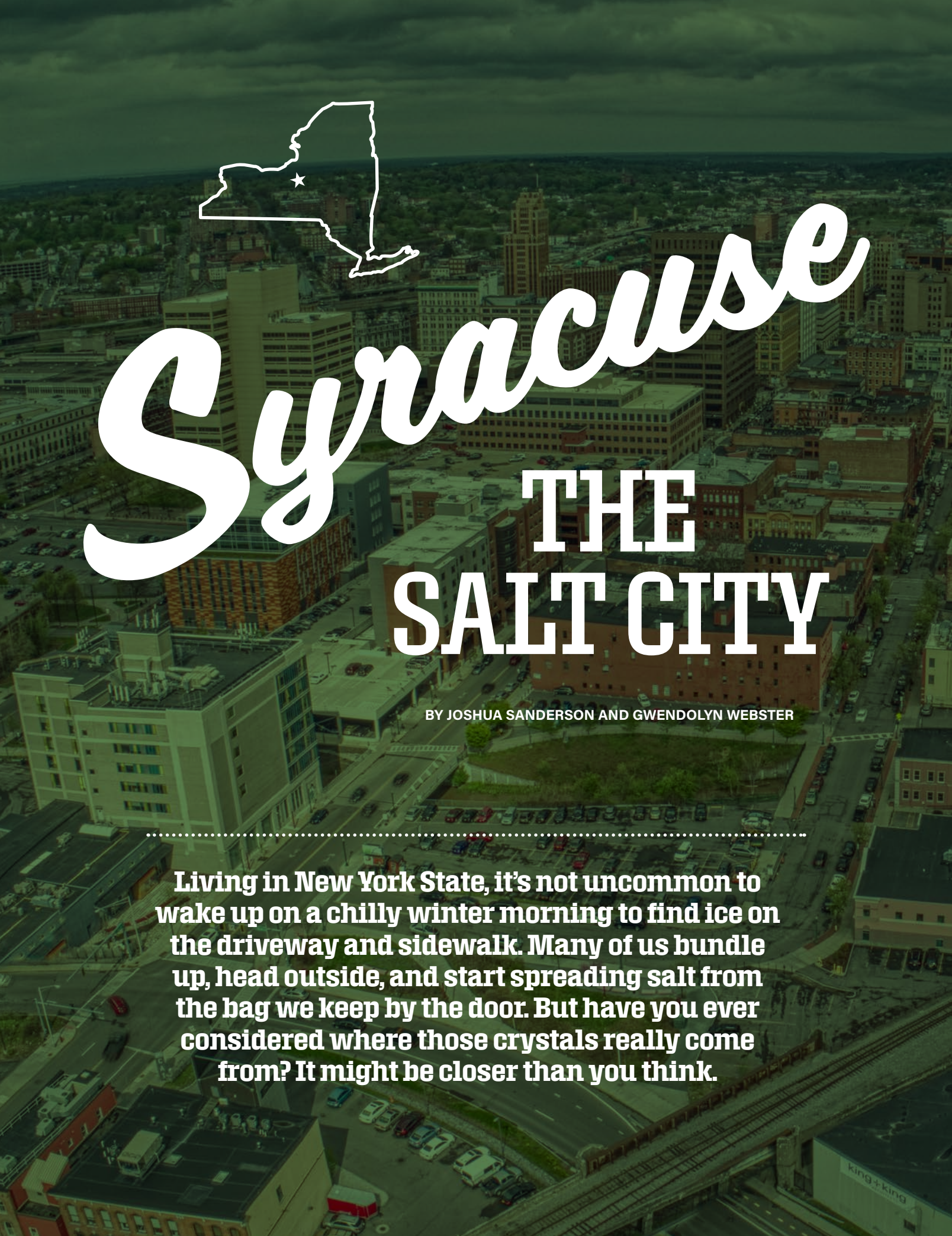


Syracuse

THE SALT CITY

BY JOSHUA SANDERSON AND GWENDOLYN WEBSTER

Living in New York State, it's not uncommon to wake up on a chilly winter morning to find ice on the driveway and sidewalk. Many of us bundle up, head outside, and start spreading salt from the bag we keep by the door. But have you ever considered where those crystals really come from? It might be closer than you think.

← Historic salt well houses, where brine is pumped, at a salt salt processing facility in Syracuse, New York, ca. 1908; courtesy of New York State Archives

↓ Boil block and salt kettle replica, located at the Onondaga County Parks Salt Museum; by Vincent Tarroli

↑ A pumping station at a salt processing facility in Syracuse, New York; ca. 1910; courtesy of New York State Archives

HISTORICAL SALT PRODUCTION

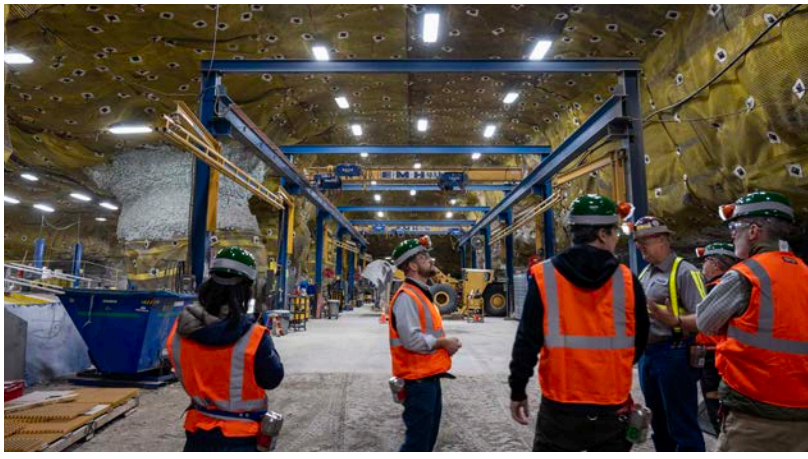
When you think of Syracuse, salt is probably not the first thing that comes to mind. However, the city has a long history with the flavor-enriching mineral, spanning as far back as 400 million years. Around that time, during the Silurian period, today's western and central New York State was a vast, shallow inland sea. As time progressed, the sea evaporated and left behind thick salt deposits, interbedded with shale, known geologically as the Salina group.

Prior to European settlers, the Haudenosaunee people, particularly the Onondaga, used salt from local waters for medicinal purposes and in the preparation of food. Approximately 370 years ago, a colonial settler dipped a cup into a spring near Onondaga Lake. To their surprise, what they drank reminded them of the ocean. It was the taste of brine (a solution of water and salt). That experience is one of the earliest colonial accounts of the brine springs located near Syracuse, a resource that would eventually become very profitable.

Early salt producers used two methods to make salt from the brine springs' water: solar evaporation and boiling. The solar evaporation method relied on the sun to dry shallow beds of brine, leaving behind a crust of salt crystals. The boiling method, which may have been preferred due to Syracuse's colder climate, used iron kettles to heat the brine until it evaporated, leaving salt behind.

By the mid-1800s, Syracuse was producing over 12 million bushels of salt per year and became the largest salt-producing region in the United States. With the completion of the Erie Canal in 1825, it became easier to ship salt to other parts of the country. Its production of salt and advancements in brine pumping systems, boiling techniques, and infrastructure design led to Syracuse becoming becoming a center of innovation and a leader of industrial development, earning the nickname "Salt City."

While this era remains a vibrant part of the city's history, Syracuse's salt production came to an end in the early 20th century due to the establishment of salt producers in western states, more affordable and efficient production methods, and a decline in productivity of the area's springs.



MODERN SALT PRODUCTION METHODS

Mining for salt soon became the new industry standard. In 1878, the first solution salt mining well in New York State was drilled in Wyoming County. Solution mining uses a series of wells to inject water into an underground salt deposit to dissolve it, which creates brine. The brine is returned to the surface and can be used for chemical manufacturing.

For use in table salt, water conditioning, or pharmaceutical products, the brine is further concentrated by undergoing vacuum evaporation. In this process, the liquid is heated to remove water and increase salinity, followed by centrifuging to dry the resulting salt.

When the salt deposit is depleted at a well location, the void that remains is called a cavern. A series of connected caverns is called a gallery. Caverns and galleries created by solution mining can sometimes be repurposed for storing natural gas or liquefied petroleum gas, or for other forms of energy storage, such as compressed air.

Today, DEC regulates four active solution salt mining fields in Wyoming and Schuyler counties. These salt fields contain approximately 100 wells.

Conventional salt mining was also developed in the late 1800s and is still in use today. In this method, a shaft is mined to access the underground salt layer, then a grid of tunnels is excavated. A "room-and-pillar" network is created, with solid pillars of salt supporting the tunnels. The resulting walls of salt are excavated using small, controlled blasts or a continuous mining machine. Front-end loaders remove the fallen salt, which is then processed in a crusher for uniformity. The salt is then hoisted to the surface and hauled away by trucks and trains to be used primarily for deicing roads and snow removal.

Currently, there are two active conventional salt mines that are regulated by DEC. Cargill's Cayuga Mine is located in Tompkins and Schuyler counties. Since the start of its production in 1921, the Cayuga Mine is the deepest and eastern-most room-and-pillar salt mine developed in the United States. American Rock Salt's Hampton Corners Mine is located in Livingston County. After construction was officially completed in 2001, it was the first successful salt mine built in the United States in more than 40 years.

Today, New York State is one of the biggest producers of salt in the country. When you're adding salt to your favorite foods or scattering it on your driveway to melt away the ice, take a moment to consider how it got to you. If you're a Syracuse resident, it probably came not far from your own back yard.

↑ Clockwise from top left: Roadheader used to smooth tunnel floors to aid the passage of other motorized vehicles

A front end loader scooping salt

DEC staff observing the mechanic's shop in the Cargill Salt Mine

A salt-and-pillar network in a conventional mine

Photos by DEC staff

A VERSATILE EVAPORITE

Besides making things taste good, salt has a variety of uses that affect our daily lives. Most salt in New York State that is mined with conventional methods is used as road salt to melt ice and keep driving conditions safe during winter. Salt produced from brine wells is often purer than rock salt mined by conventional methods, and is used for applications like table salt, food preservation, and pharmaceuticals, such as aspirin. Other products salt can be found in include cleaning products, rubber, soaps, lotions, and electronic circuits. Salt has many other uses, including removing water from aviation fuel and as a stain remover.

Salty Language

Salt has been a valuable resource since ancient times and ha made its way into many facets of our language. How many of these saline sayings do you know?

- Worth their salt: worthy of their salary or respect (the 'sal' i salary is also derived from the Latin word for salt, *sal*)
- Take it with a grain of salt: don't believe something comple
- Salt of the earth: a good and honest person
- Rubbing salt in the wound: making a bad situation worse
- Being salty: to be upset or annoyed about something
- Pound salt: go away!

REDUCING GREENHOUSE GAS EMISSIONS

This is American Rock Salt s all-electric continuous miner, a machine with rotating teeth that breaks the rock in front of it, while simultaneously feeding it into a conveyor system. To be delivered later in 2026, and purchased with a grant from the New York State Energy Research and Development Authority, the continuous miner will replace approximately one-third of the mine s diesel-powered equipment, like haul trucks, greatly decreasing its carbon footprint.

Joshua Sanderson and Gwendolyn Webster are Mined Land Reclamation Specialists in DEC's Division of Mineral Resources.