Salt and the City

How a prehistoric saltworks laid the foundations for Europe’s oldest town more than 7,000 years ago

by Matthew Brunwasser

Travel about 30 miles from the Black Sea on Bulgaria’s Provadia River and you will reach a huge tell more than 70 feet tall and 300 feet in diameter. From a distance, the tell may appear to be just a grass-covered hill, but as you get closer, you realize that the mound is not a natural feature of the landscape. Extensive excavation has revealed what may well be the mound’s most striking feature: impressive fortification walls that once encircled an ancient settlement. The walls are high—at least nine feet tall in places—and between six and nine feet thick. According to Vassil Nikolov, the archaeologist in charge of the excavations at the site, called Provadia, there was a reason the walls were so imposing. “To have a need for such walls,” says Nikolov, “imagine what they needed to hide.” Nikolov believes that what lay behind the fortifications, likely some of the largest

in Europe in the mid-fifth millennium B.C., was an exceptional level of wealth Provadia’s inhabitants earned by exploiting one of history’s oldest and most important commodities: salt.

Little is known about the people who created the first saltworks and founded the first settlement in Provadia, although it is thought that they belonged to the Karanovo III-IV culture. But the evidence for these Neolithic and Chalcolithic inhabitants of southeastern Europe is scattered and relatively unstudied. It’s natural that salt production would arise in this area—Provadia sits on top of the largest deposit of salt in southeastern Europe. And human beings need salt to survive. It helps maintain a proper balance of fluid in our blood, aids our intestines in absorbing certain nutrients, and transmits vital information to our nerves and muscles. Beginning at least 10,000 years ago, when humans began farming, people likely got enough salt in
More than 1,000 years of salt

Archaeologist Vassil Nikolov has identified three distinct stages in the development of salt extraction technology at Provadia in Bulgaria.

**Stoves: 5500–5200 B.C.**

For the first three centuries of salt production at Provadia, brine from springs was placed in specially designed thin-walled ceramic bowls and baked in solid dome ovens that were also used for heating and food preparation. Each oven had the capacity to evaporate about 25 gallons of brine at a time and produce 10 tons of hard salt per year. Nikolov found one such oven inside a large two-story building. He believes it is an example of the earliest application of this method of salt production recorded in Europe, and that “Provadia is the earliest salt production site in Europe discovered so far.”

**Pit Installations: Late Neolithic, 5200–4900 B.C.**

When Provadia outgrew its salt production capacity and the inhabitants wanted to move production outside the buildings, pit installations were built about 450 feet from the tell. One of these installations, excavated in 2012, was kidney-shaped, more than nine feet long and six feet wide, and was dug 15 inches into the soil. It was found filled with a layer of white ash from high-temperature firing. This installation was divided into four sections and lined with clay. Brine-filled bowls were then placed on the bottom of the compartments and boiled in large quantities by a wood fire. Nikolov calculates that each installation produced more than 200 pounds of hard salt per batch, making it four times more efficient than the older method. He estimates that each installation yielded 35–40 tons of salt per year.

**Open-Air Installations: Middle And Late Chalcolithic, 4700–4200 B.C.**

When the settlement at Provadia reached the peak of its development, Nikolov believes that the need to get salt to the market drove technological advances. A new, larger, industrial-scale production site was built between 4700 and 4500 B.C., partly covering the remains of the Late Neolithic site. The pits dug in the ground were replaced by open-air installations almost 35 feet long and about 25 feet wide, with a depth of about six feet—about the size of a backyard swimming pool. Deep, thick-walled tubs replaced ceramic bowls. The production site covers at least 1.25 acres but may be larger. Five such installations have been identified so far. According to Nikolov, “No other Neolithic and Chalcolithic salt production site that used the above-mentioned highly efficient technologies—technologies whose principles have remained valid in salt-making until the present day—has been identified so far in southeast Europe.”

Above, left to right: A Neolithic oven used for brine evaporation and one of the vessels, in situ, used to hold the brine; a well-preserved dome of a Neolithic brine evaporation oven; one of the large pits used for brine evaporation in the Middle and Late Chalcolithic periods.

their diets from eating the animals they hunted. According to archaeologist Thomas Saile of the University of Regensburg, a specialist in salt production and trade in central Europe, the meat of wild animals naturally has enough salt to supply peoples’ needs. But when people began farming and eating a mostly vegetarian diet, supplemented by meat from domesticated animals, according to the theory, they needed to find an additional source of salt. While the first salt deposits may have been located by observing animals licking brine springs, over the millennia salt production technology advanced from simple salt gathering, to boiling brine to extract the mineral, and eventually to salt mining and large, industrial-scale production.

At Provadia, Nikolov has been able to trace more than 1,000 years of this history, from the earliest evidence of settlement at the site, dating from the Neolithic, to the height of the salt industry in the Middle and Late Chalcolithic periods when the walls were built, and beyond. This evidence has led the archaeologist to suggest that Provadia is, in fact, “the earliest salt extraction center in Europe” and a site that has a great deal to tell us not only about the role of salt in prehistoric Europe, but also about what might be Europe’s oldest town, and even the first currency.

Some 600 feet away from the tell’s thick walls were the springs from which the brine was collected beginning in the Late Neolithic period. Radiocarbon dating of animal bones and charred wood and wheat found at the site places it at about 5500 B.C. At this time, salt was extracted by evaporating brine in ceramic bowls placed in dome-shaped ovens like the example found on the first floor of a two-story
building within the settlement. In the later Neolithic, deep pits were dug about 450 feet from the tell, allowing large amounts of brine to evaporate in ceramic vessels heated by wood fires. Finally, in the Chalcolithic period, very large installations, five of which Nikolov has already found north of the tell, housed massive tubs that were used to evaporate the brine.

While many archaeologists agree that Provadia has produced evidence of some of Europe’s earliest salt producers—perhaps even among the earliest in the world—not all agree with Nikolov’s conclusions. Saile, for one, says that the finds at Provadia are valuable, but cautions against making categorical interpretations, especially for such early periods. “If you look at the Bronze Age or Iron Age some 3,000 years later in central Europe, you have plentiful evidence of large-scale salt production: alpine salt mines, sea water, brine springs; and you find ceramic brine vessels all over the place,” says Saile. “But if you compare this with what we have from the Neolithic, we have only very limited evidence. The further back you go, the more difficult it gets.” Saile does acknowledge that evidence for Neolithic and Chalcolithic culture is easier to find in southeastern Europe, and that the massive salt vein in Provadia makes it likely that salt production on some scale was going on there even in these early periods. But, he says, “the question is whether the salt production was on a large scale, and how to prove it.”

PROVADIA NOT ONLY CONTRIBUTES to our knowledge of the role of salt in human history, Nikolov says, the site may actually be Europe’s oldest town. “The evidence from Provadia meets the criteria for prehistoric urbanization: fortification walls, long-distance trade, and specialized economic production,” he says. Certainly Provadia had substantial walls, built to protect its inhabitants and their homes. As for the long-distance trade, Nikolov admits that archaeological evidence for such early trade relations is hard to come by. Indeed, it was a long time ago. Men could only carry a maximum of about 65 pounds on trade expeditions—journeys that can leave few to no traces behind—and archaeologists have not found any evidence of wheeled travel from this period. But according to Nikolov, the evidence for economic production at Provadia is clear. He believes locals used brine for
The tools of Provadia’s salt-makers’ trade include stone pounders (top) dating from the Neolithic period and ceramic ladies (above) used in the evaporation process.

The change from a hunter-gatherer way of life to a more sedentary agricultural one is attested to by four antler sickles (top) found in a Neolithic grain-storage bin. On the tell’s northeastern side (above), the remains of the Middle Chalcolithic stone bastions, fortification wall gate, and defensive moat have been uncovered.

perhaps indicative of the property owner’s higher economic status, may be evidence for there being different social classes at Provadia. Other evidence may come from the burials that Nikolov is excavating a little less than 200 feet from the tell. Thus far the grave goods have included pots, beads, an ax, ceramics, and copper earrings. One 20-something man was

their own needs and evaporation was only used to produce salt for people living far from the source, who likely were Provadia’s trading partners. “In prehistoric societies in Europe, salt was the first type of specialized production to develop and allow for social stratification and the creation of an upper class of people,” he explains. “Farming doesn’t make you rich or allow the accumulation of wealth.” Salt production may therefore have led to a differentiation of economic and social classes.

A house that had an abundance of well-decorated pots,
found lying on his side with a stone hammer-ax in his hand, which Nikolov thinks is a sign of high social status. But Saile is not so sure. “I’m very skeptical about combining rich graves and social stratification with salt,” he says. “If it was money like coins, people would hide it somewhere and it could be found,” he adds. “The problem is that salt is water soluble and doesn’t leave a trace. We don’t have it anymore.”

Some particularly interesting artifacts from Provadia are fragments of dozens of seemingly standardized clay vessels in different sizes that Nikolov believes connote “denominations” of salt and functioned as money bags. These fragments, and a few intact examples, were found mostly in the pits of the larger production center, as well as in a building within the settlement. The shape and thickness of these vessels are different from the thinner pots that were used to heat and evaporate the brine. In these vessels, thick, wet, not fully evaporated salt was placed to mold it into a form.

But could these prehistoric Europeans really have used salt like currency? Michael Hudson, an economist at the University of Missouri who previously joined Harvard University archaeologists to investigate Babylonian economics and theories about the origins of money, says that without a written language—certainly absent in the Neolithic and Chalcolithic periods—archaeology alone is often unable to reconstruct the institutional systems needed to understand complex concepts such as money. By contrast, for example, in ancient Babylon, several millennia later, Hudson says, silver was used as the earliest currency for foreign trade in Mesopotamia, at an exchange rate set at one shekel of silver per one bushel of barley. This system of exchange came into existence to meet the accounting needs of large institutions, such as temples and palaces, and required a specialized labor force to maintain it. Money was also part of the system of weights and measures. “There had to be some authority, a temple or chieftain’s household, that somehow mediated this,” Hudson says. “If it’s a currency, you have to ask, ‘What was it exchanged for and how? And at what rates?’” While Hudson agrees that salt was very important economically, he warns against assuming that the people involved in producing the salt “somehow went around exchanging it for other things.”

No one really disputes the leading role played by salt in human history, as both a necessary nutrient and an important commodity. Through the Latin word sal, salt has brought us words like salary: Roman soldiers were paid a “salarium,” an allowance to purchase salt and other necessities. And one has to agree that the evidence from Provadia for prehistoric salt production is intriguing and creates more questions than it answers. Nikolov hopes that by excavating more graves in the coming season, he will uncover evidence that will help him clarify Provadia’s trade relations with other settlements. “There weren’t that many people who lived behind these walls—maybe only around 600,” says Nikolov, “but they were perhaps among the first wealthy class of people in history.” And he is convinced that they used their wealth to pay for imported prestige items, food, ceramics, and also the labor of those who built their homes, streets, and salt manufacturing sites. “For all this a lot of labor was needed,” Nikolov says. “And salt paid for these walls to be built.”

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