

The salt of early Rome: historical, economic and environmental contexts

Gabriele Cifani - University of Rome "Tor Vergata"

The importance of salt in the economies of the ancient world in general and of Archaic and Republican Rome in particular is well known.

Salt was widely used from the Neolithic onwards, it was an important and sometimes exclusive requirement in a wide range of processes, including in particular the preservation of food and the tanning of hides, but also specific procedures in metallurgy and dyeing.

The use of salt in animal husbandry was equally important, as it was an essential food supplement for herbivorous domestic animals, especially if they were grazed in summer on mountain pastures, as was often the case in transhumant pastoralism.

Manuals on traditional farming state that a single sheep may need as much as 5 kilogrammes of salt per year, while a cow or horse may require up to about 20 kilogrammes; the minimum required salt consumption for an adult man is around 2.5 kilogrammes per year, although in the pre-industrial age this value could easily have exceeded 20 kilogrammes if the use of salt in dairy products and the preservation of meat and fish is taken into account.

Salt was relatively widely available and inexpensive in coastal areas, where it was extracted from seawater with a yield of 30 kilogrammes per cubic metre, but its cost increased in proportion to the distance from the coast and the altitude of the site of exportation. In fact, Aristotle and Theophrastus reported that the Umbri (an ethnos predominantly localised to the hinterland of Central Italy) were obliged to obtain salt by boiling the ashes of canes and reeds, an expensive process in terms of fuel and time which finds ethnographic confirmation in the tribes of internal Papuasia.

The phase in which the salt of the central Tyrrhenian coastal area became economically relevant can be contextualised as the result of three phenomena:

- 1) the rising economic importance of stockbreeding, including cattle and horses.
- 2) the growing importance and, presumably, increase in population of the internal mountain communities of the Central Apennines, as this region became specialised in pasturage.
- 3) the availability of a wealth surplus and of manpower to carry out seasonal salt extraction along the coast.

The new image of the Copper Age in the low Tiber Valley, reconstructed following recent archaeological investigations has permitted the hypothesis that during the third millennium BC there was control of the transhumance routes from the coastal regions to the Apennine hinterland. However, during the Bronze Age, above all in the Recent and Final phases, these relationships would have been reinforced and correlated on a greater scale.

In fact, we now have evidence of stable settlements, for example in the area of the Fucine Lake, where already from the mid and final Bronze Age horse breeding was largely practiced, together with ovine and bovines, and of nucleation of settlements in naturally fortified sites in the upper Aterno valley (central Apennine, Abruzzo) and the rise of social complexity by the end of the Final Bronze Age.

It implies the presence of hierarchized communities specializing in pastoral activities, whose local economies were highly dependent on the importation of salt from the coastal Tyrrhenian area.

As a matter of fact, the production of salt by means of salt pans was potentially much more difficult along the mid-Adriatic coast, with lagoons being much less common because of the different geomorphology found there.

These inland-based communities must be considered to be among the main consumers of the salt

extracted in coastal Latium.

The coastal area of ancient Latium was characterized by lagoons and marshes, and presumably by economy typical of marshland based on fishing (including shellfish), hunting, animal pasturing, reed cutting (for thatching materials or as fuel), salt extraction and possibly sulphur and iron ore extraction.

- The lagoon area near Ostia was well known in the Middle Ages for the presence of migratory species of birds (mainly geese, ducks and quail), which remained an important source of food until the eighteenth century.

- During the Copper Age, the earliest settlement revealed by excavation was located on the shore of the ancient coastal lagoon of *Maccarese*, just 10 kilometres north of the ancient mouth of the Tiber, and dates back to around 2500 BC. In this village people lived in thatched huts, made use of tools of copper and obsidian, the latter presumably imported from the Pontine Islands, or the Aeolian Islands near Sicily. The same community practised rather sophisticated husbandry of cows, sheep and even horses. Cattle were butchered for meat when quite old, which implies their previous use as draught animals and for milk production.

Regarding the Final Bronze Age, on the right bank of the Tiber, a recent investigation of the site of Le Vignole, on the shores of the ancient *Maccarese* lake has revealed the presence of a seasonal settlement dedicated to the manufacturing of precious objects, which involved the use of metals, amber, glass and ivory.

It is possible that the city presided from the beginning over the salt pans of the lagoon situated on the left bank of the Tiber, referred to on historical maps as *Stagno di Levante*, exerting its control through the city of Ficana, which, because of its small size (7 hectares), must have been a satellite town of the more extensive city of Rome (not less than 150 hectares), or alternatively of Veii (about 190 hectares). According to the literary sources it was the latter which controlled the salt pans of the large coastal lagoon known as *Stagno di Ponente*, or *di Maccarese*, which was situated on the right bank of the Tiber in the area occupied today by Fiumicino International Airport, while the community of Rome, according to Cicero, could have had a kind of control of the left side of the mouth of the river already in the mythical age of Romulus and later in that of Ancus Marcius.

Archaeological findings and changes in territorial organisation indicate that the lagoons at the mouth of the Tiber, which had been partially controlled by Rome since the Early Iron Age through the city of Ficana, were definitively secured after Veii was taken in 396 BC.

The most important economic aspect of the control of these salt pans was not so much the domination of salt production, an activity in which Rome must have been involved to varying degrees since pre-urban times, but rather the control, between the eighth and fifth centuries BC, of at least a part of the regional distribution of salt, and above all of the most direct road route towards Sabina, which terminated at the Tiberine road hub, also presided over by Rome.

Over the last fifteen years, a series of landscape research projects carried out in the Tiber Delta has radically changed our knowledge of this area, which was highly strategic for the economy of ancient Rome.

This work has revealed a landscape of exploitation in the lacustrine areas north of the mouth of the Tiber dating back to prehistory (see above), while a series of sedimentological and palaeobotanical fieldwork projects involving drilling and pollen analysis have contributed to the reconstruction of the complex environment at the mouth of the Tiber in the Late Holocene.

As far as the Early Iron Age and the Orientalizing period are concerned, two aspects are worthy of note from the historical point of view.

First, north of the mouth of the Tiber, the around the modern town of *Maccarese* was characterised by a freshwater coastal lake, the above mentioned "*Lago di Ponente*".

However, at some point between the ninth and seventh centuries BC, an exceptional

environmental event occurred: during a phase in which the sea level was almost stable, the water of this lake changed from fresh to salt or brackish as a result of the breaching of the coastal dunes. Evidence obtained by drilling confirms that this change took place later than 910-800 cal BC, which is a valid *terminus post quem*. In addition, palynological and carpological analysis of sediments from the same area have revealed that an increase in salinity occurred around 600 BC, which represents a *terminus ante quem* for this phenomenon.

Secondly, south of the mouth of the Tiber, the area of the Ostia coastal lake, or "*Lago di Levante*", appears to have been rather unstable morphologically because of changes caused by the river in the period between 1900 and 600 BC. Nevertheless, around 600 BC there is a clear increase in the salinity of the water, which can only be explained by a breaching of the coastal dunes.

In both cases the change can be interpreted either as the results of natural phenomena, such as erosion by the sea, or as the effect of human intervention, such as the digging of artificial channels from the sea to the lakes through the sand dunes.

However, the more or less simultaneous occurrence of two such events is unknown in other geological periods and thus human intervention is the more likely explanation.

Furthermore, human intervention would in any case be required to keep the connections between the sea and the lakes open, as shown, for instance, by the systematic seasonal dredging work carried out to maintain the link between the *Stagno di Levante* and the Tyrrhenian sea in modern times.

Linking these two coastal lakes to the sea would have made it possible to control their water levels, increase the fish population and fishing activities, construct salt pans in the coastal sectors of the lagoons, prevent malaria and even create a harbour for boats and small ships in the centres of the basins.

From a historical point of view, it is also worth noting that these landscape changes occurred when two important Iron Age communities (Rome and Veii) had appeared as consolidated states, a period in which Roman interest in controlling the resources at the mouth of the Tiber and the construction of salt pans is emphasised by the literary tradition.