

Briquetage in Early Hellenistic Etruscan Spina (Ferrara, Italy)

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Excavations carried out in the 1960s to 1980s in the urban area of the Etruscan city of Spina, which have remained largely unpublished, have shown that the city had a roughly trapezoidal ground plan, a longest extension in the north-south direction of about 600 m and a maximum width in the east-west direction of 200 m. It covered an area of about 16 ha. It covered an area of about 16 ha, in the east it was situated on the course of the river Po (*Padus Vetus*) and in the west probably on a lagoon and another smaller river. Inside, it had an orthogonal structure as shown by the geophysical survey. A complicated palisade construction, up to 10 m wide, served as a base for the settlement. A stratigraphic sequence of different settlement phases could also be established.

However, a more exact sequence and a more precise chronological classification of the individual phases could not be worked out.

This was the starting point for the excavation project of the University of Zurich (2008-2017), which had set itself the goal of providing a clear sequence of the settlement phases in the city area, if possible back to the time of the city's foundation, in addition to the geophysical investigation of the entire city area and indications of the natural environment with the help of pollen-analytical investigations through a limited stratigraphic excavation. The excavation showed a multilayer settlement stratigraphy of wooden houses from the late VI to the end of the IV century BC with water canals of different scales.

Probably only a short time after the destruction of the house of the mid IV century phase, (there is no evidence of a longer hiatus), the site was raised with a compact, strongly clayey layer to a new walking level, which lies at a height of approx. -2.2 to -2.26 m s. l. m., in order to create a level ground surface for a new use.

This new phase of construction has a completely different character in terms of appearance and function, although the older orientation has been maintained. The stratigraphic investigations have shown that after the violent destruction of the mid IV century phase in the third quarter of the 4th century BC, not only was the level raised, but the canals, the western one as well as the northern one, were abandoned and the area acquired a new function.

Whereas previously, since the founding of the city in the late VI century, it had been a zone of residential buildings, now, at least in the area of the excavation section of the University of Zurich and some others as well, a commercial zone was established. Directly on the backfilled western canal, the stone foundation for a simple rectangular building was erected with river stones and with the reuse of a large stone anchor (?) as a corner block, the extension of which to the east is uncertain. This stone foundation, 3.8 m long in a north-south direction, has a reinforcement on the inside at its northern end and bends to the east in the south, approximately in the continuation of the course of the southern edge of the house of the 5th construction phase (period IX), whereby only individual stones could still be detected in the eastern area.

There are no indications of any internal division of this structure. It was open to the north, where a series of small flat, round or oval impressions were found in the floor, in the vicinity of which lay a large quantity - several hundred kilograms - of thick terracotta fragments, coarsely leached with organic remains, not very highly fired and very brittle, with cord impressions and finger marks; less common were supports, some of them slightly curved in section, round or oval, made of almost the same but less leached material, but more strongly fired by repeated use in the fire. These fragments, due to their make, the negative results (with regard to the presence of traces of animal and vegetable fats of the specimens analysed by gas chromatography), their distribution and accumulation can undoubtedly be interpreted as the remains of briquetage deliberately smashed after use to produce salt by boiling. The fragments probably belonged to smaller, rectangular basins in which the highly saline water was boiled, and which stood on the round supports mentioned above. The earlier, deeper channels during this last phase of the settlement only had the appearance of shallow trenches (*canalette*), which probably served to supply water. The earlier canal system was thus no longer in operation, which also suggests that the urban organisation of Spina may have changed radically in the second half of the IV century. The small finds made in connection with these findings, among which there is also a lot of older, heavily washed-out ceramic material, mostly date to the decades around 300 BC; certainly younger finds are missing.