Towards Determining the Chief Function of the Settlement of Borysthenes

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The site of Borysthenes, the earliest Greek settlement in the northern Black Sea area, is located on the island of Berezan' situated at the mouth of the estuaries of the Dnieper and Bug rivers. The large-scale historical and archaeological research currently being carried out there has already yielded a number of significant discoveries. Of particular importance is some additional evidence recently obtained on the date of the origin of this colony, its outward appearance, culture, and historical development, as well as its relations with the barbarians of the hinterland.[1] Yet the most important result of the excavations of recent years is the discovery of the sacred precinct at the settlement – the *temenos* with the remains of the Temple of Aphrodite from the second half of the 6th and beginning of the 5th century BC.[2] It is possible that this fact may tip the balance, at least for now, in favour of the hypothesis about the *polis* status of Borysthenes.

Nevertheless, it must be acknowledged that the very important question about the causes of and motivation behind the appearance of the first group of colonists in this remote region of the Greek *oikoumene* – i.e. the question about the basic function of early Borysthenes – has remained extremely controversial. In this respect, almost the entire conceivable spectrum of ideas and concepts co-exists comfortably in modern historiography. The question is, indeed, difficult to answer, not only with respect to Borysthenes itself but also to many other Greek settlements in the northern Black Sea area, and although there seem to be answers for the period of the mature and fully developed existence of the Greek cities, the problem becomes extremely complicated when focussing on the period of the formation and initial development of these cities. However, this problem constitutes a key issue, since it involves the elucidation of the essence of Greek colonisation, its goals and its directions.

Despite its importance, the problem of the earliest existence of Greek settlements on the coasts of the northern Pontos is still far from being resolved: a range of possible answers have been put forward. Formerly, it was believed that at the beginning of its existence the Berezan' settlement was a fishing station providing its metropolis with salted fish. However, this supposition was difficult to prove. Indeed, neither finds of fish bones nor

weights of stone or other materials from fishing nets may be considered as evidence of such specialisation.

What also proved to be tenacious was the so-called "agrarian" theory, which gave preference to farming as the key economic activity of Borysthenes. But again, the interpretation of the archaeological arguments in favour of this view is somewhat doubtful. True, a number of pits dug in the bedrock, which possibly served for storing grain have been found, but aside from the fact that they may have been used for other purposes as well, including the storage of the grain always kept for home consumption, does not necessarily imply its export.

Finally, mention should be made of the hypothesis about the trade function of the settlement, which has been put forward several times, especially with regard to the mediating role of Borysthenes in the trade relations between Greece and the northern Black Sea region. It may be true that Berezan' functioned as such at some point in time, but not for the entire period of its existence. The cultural layers of the settlement abound in imported pottery, hence the conclusion that this pottery was redistributed from this site to the other northern Black Sea lands. But in fact, very few items of imported fine ware dated to the initial period of the life of Borysthenes have been found. Moreover, the pottery found may not necessarily have been intended for further sale. It is possible, however, that trade actually played a certain role in the existence of Borysthenes.

While some researchers consistently defend the view that there existed a crucial interest among the first settlers from Ionia in the development of their own agricultural production,[3] others with no less enthusiasm point out the necessity of taking into account the colonists' preoccupations with – and aspirations concerning – trade and raw-materials.[4]

We should mention that the current "stalemate" over this problem may, indeed, only be resolved by the appearance of some new historical and archaeological evidence. The hypotheses and concepts, though logical in themselves, are based in each case on some extremely limited and often rather incorrect or dubious information.

Of note in this context are the results of the recent excavations by the Berezan' (Nižnebugskaja) Archaeological Expedition of the State Hermitage Museum. In 1998-2000 the principal efforts of this expedition were directed towards the investigation of one of the earliest occupied areas in ancient Berezan', situated on the eastern (coastal) edge of the settlement (excavation area "Osnovnoj"). Here in what was the most ancient built-up area at the settlement which included 17 relatively primitive "earthen" structures and 47 pits for various purposes, it was possible to uncover what are clearly the remains of two copper-smelting workshops (Building Complexes nos. 6 and 13) dated to the end of the 7th and the first half of the 6th century BC – i.e. to precisely the period of the appearance and formation of the colony.

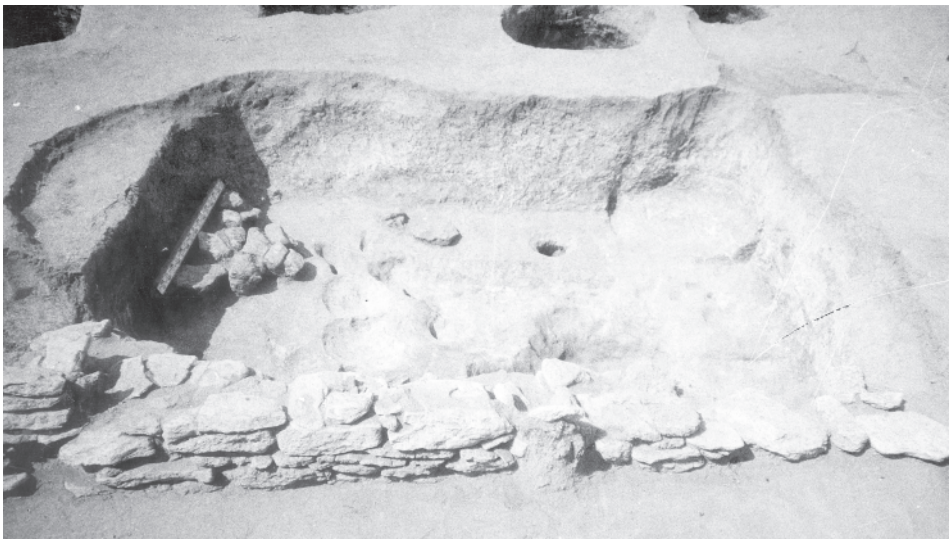

Fig. 1. Building Complex no. 6 in the excavation area "Osnovnoj". View from west.

Fig. 2. Building Complex no. 6 in the excavation area "Osnovnoj". View from north.

The first of them, Building Complex no. 6, consists of the remains of a relatively large house of dug-out type of quadrangular plan, oriented N-S along its long axis, measuring 4.5-4.75 x 4.0 m, 1.1-1.2 m deep and with an area of about 19 m^2 (Fig. 1-2). The bedrock walls of this dug-out were even and upright, without any visible traces of destruction, suggesting that the pit was filled fairly quickly after its construction and all apparently on a single occasion.

The floor of this structure presented a layer of dark, severely scorched clay, up to 5 cm thick, and impregnated with numerous tiny pieces of copper and charcoal. Within the layer of the floor, the following parts of internal constructions were found: 14 small conical pits (from 12 to 30 cm in diameter and from 7 to 30 cm deep), which mostly seem to have been for the insertion of supporting posts. The relative arrangement of these pits and the walls of the dug out suggests that its roof was double-pitched. In the same floor layer, in the northern half of the complex, there were two "reservoirs" or "pools" of oval plan, bowl-shaped cross-section, and measuring: a) 2.0 x 1.5 m and 55 cm deep, and b) 1.3 x 1.2 m and 55 cm deep. The bedrock walls and bottoms of these "reservoirs" showed traces of intense burning. Within the limits of the larger "reservoir", near its western edge, were found the remains of the adobe hearth (measuring 85 x 85 cm and 2 cm thick) of a round oven. The remains of another similar hearth were found near the northern wall of the pit, which bore to almost its entire height obvious traces of long-term exposure to fire.

In addition to the material mentioned above, the presence of 6 rather small oval (from 0.25 to 1.0 m long, from 10 to 15 cm wide, and about 10 cm deep) grooves found in the floor in the north-western corner of the building complex is worthy of note. These grooves were probably related in some way to the metal manufacturing process. Also probably related to metal manufacturing was the large cylindrical pit measuring 1.35 m in diameter found in the north-eastern corner of the complex. During the field seasons of 1998-2000 part of this pit was excavated to a depth of 3.6 m.

To conclude the description of the remains of the internal constructions we must mention the presence of a small quantity of seemingly collapsed, undressed limestone blocks lying on the floor near the southern wall of the house. These stones possibly sank from the ancient ground level during the filling of the pit. It is noteworthy that the character of the fill differed significantly from the fills of other "earthen" structures in this area of the Berezan' settlement. Traceable down the entire depth of the pit and right down to its adobe floor, was a dark, mixed ash-and-clay layer rich in fine pieces of charcoal and hardened drops and small shapeless ingots of copper weighing up to 125 g.

The excavation of the fill yielded material dated between the end of the 7th and the second quarter of the 6th century BC without any finds from later periods. The items found included 1759 fragments of pottery (mostly walls of amphorae) and 344 animal bones. It should be noted that, in contrast to the amphorae, all other categories of wheel-made pottery constituted a rather small group (about 15% of the total). The most numerous of these were the painted East Ionic pottery including some fragments of high quality, in particular a *dinos* with a representation of grazing wild goats dated as early as the end of the 7th or the very beginning of the 6th century BC. The

Fig. 3. Building Complex no. 13 in the excavation area "Osnovnoj".

most notable items found within the limits of the dug-out and which may in some way have been connected with its main function are, however, the 272 hardened splashes and ingots of copper with a total weight of 2.5 kg, and 187 pieces of various parts of ovens including one severely scorched tubular nozzle.

An emission analysis of the ingots from this complex, carried out in the Laboratory of Chemical Technology, IHMC RAS (analyst A.N. Egor'kov), showed that the basic constituent is copper with the following additions: Sn-0.1%, Pb-0.8%, Zn-0%, Bi-0%, Sb-0.3%, As-1.8%, Ag-0.09%, Ni-0.02%, Fe-0.06%, and Mn-0%. According to these data, the metal of the ingots may be described as arsenical bronze, though certain features (the ratio As:Sb in particular) suggest that the presence of arsenic may have been determined by the natural character of the ore.

The second building complex (no. 13) was situated 12 metres to the west of no. 6 described above (Fig. 3). Unfortunately, only the eastern half of the complex was preserved, since the western section of the structure had been completely destroyed, to be replaced by several, stratigraphically later pit-houses (nos. 10, 14, and 16).

Judging by the preserved remains, this complex was a house of dug-out type of either oval or nearly quadrangular plan with rounded corners. The dimensions of the preserved area are: 3.5 x 2.3 m, depth 65 cm – an area of over 10.0 m^2. The bedrock walls of the dug-out are somewhat indistinct indicating that the pit had been filled over a relatively long period rather than all at once.

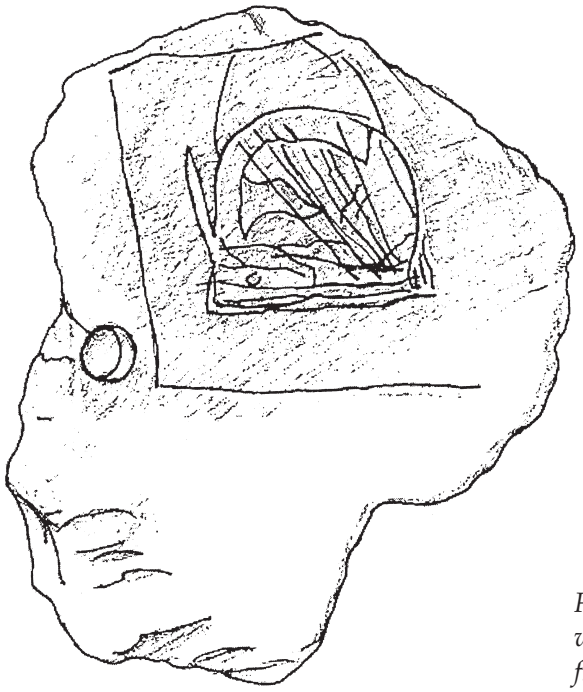

Fig. 4. Basalt net weight with representation of a ship from pit no. 47.

The floor consists of a layer of dark, severely burnt clay, up to 3 cm thick. On the floor it was possible to identify the following details of the inner constructions: 14 small rounded conical pits (from 20 to 35 cm in diameter and from 7 to 39 cm deep) for the insertion of the posts supporting the roof or some other internal construction. At present, however, we are not able to reconstruct reliably the type of roof of the complex. Also on the floor, in the north-eastern quarter of the house, were found two "pools" or "reservoirs" of oval plan and bowl-shaped vertical cross-section with the following dimensions: a) 1.35 x 1.0 m and 25 cm deep, and b) about 75 x 70 cm and 22 cm deep. The bedrock walls and bottoms of the "pools" were severely scorched.

Finally, near the eastern edge of the complex, in its central section, were found the remains of a vaulted adobe oven, with a diameter slightly over 80 cm, used over a long period of time. It is remarkable that the hearth of this oven consisted of a number of successively plastered clay layers with a total thickness of about 15 cm. In addition, fairly obvious traces of the hearth of another oven or an open fireplace measuring 95 x 73 cm were identified from a dense, nearly quadrangular accumulation of fired pieces of clay lying on the floor 50 cm from the southern edge of the house.

The excavation of the amorphous clay-and-ash fill of the dug-out yielded few but nevertheless fairly indicative items of the end of the 7th and first half of the 6th century BC (any significant finds dated to later periods being

absent) including 876 fragments of pottery (mostly amphora walls) and 89 animal bones. In addition to the amphorae, the types of the wheel-made pottery included some fragments of East-Ionic *kylikes* of the late 7th century BC decorated with hatched rhomboids and a frieze with birds.

Especially noteworthy among the other substantial finds is an oval copper ingot weighing 3.5 kg, evidently intended for trade. The ingot was found on the floor of the complex, 5 cm to the west of the vaulted oven, which was close to the eastern edge of the structure.

The results of an emission analysis of this ingot, conducted by A.N. Egor'kov in the Laboratory of Archaeological Technology of IHMC, RAS, proved to be very similar to those of the metal from pit-house no. 6, namely: Cu-basis, Sn-0%, Pb-0.03%, Zn-0%, Bi-0%, Sb-0%, As-0.02%, Ni-0.04%, Co-0.03%, Fe-0.03%, and Mn-0.02%. The only difference is the nearly complete absence of arsenic in the composition of the metal, suggesting that in pit-house no. 13, the smelting of extremely pure copper was carried out. This fact, as well as the rather insignificant contents of all the other admixtures in the metal, may enable us to view the complexes under consideration as the remains of some highly specialised production process. This also seems to be suggested by the absence of any complete copper or bronze articles or half-finished products among the substantial finds.

It is also notable that the volumes of the metal production of the copper-smelting workshops of early Borysthenes seem to have considerably exceeded the needs of the inhabitants of the relatively small settlement of the earliest colony in the northern Black Sea region at the end of the 7th and the first half of the 6th century BC. Thus it is quite natural to suppose that the products of the first metal-workers from Berezan' may have been, at least partly, intended for export. The very low percentage of articles made from pure copper (about 4%) recorded throughout the territory of Scythia,[5] leads to the supposition that the main consumer of this metal was the mother city. In this sense, early Borysthenes can be compared to other ancient raw-material colonies in the Mediterranean area such as the settlement on Pithekoussai, al-Mina, Sukas, and Gela.[6] Finally, it is very remarkable that, judging from the presence of small admixtures of cobalt (0.03-0.05%) and nickel (0.02-0.04%) in all the investigated samples of Berezan' copper, the raw material may have been supplied from the south-western regions of the Black Sea littoral, i.e. from the area of the Carpathian-Danube basin.[7] We should also note that all the other observations made during the excavation of the copper-smelting workshops of early Borysthenes (in particular, the results of the analysis of the typological composition of the assemblage of handmade pottery and the major types of earthen constructions) seem to corroborate this conclusion.

Notes

1. See, e.g., Vinogradov, Domanskij & Marčenko 1990, 121-139; Nazarov 1997a, 4-21; Solovyov 1999.
2. Nazarov 1997b, 27-29.
3. See, e.g., Košelenko & Kuznecov 1992, 10-12.
4. See, e.g., Kopejkina 1979, 107-109; Marčenko 1980, 136; Vinogradov 1989, 53-57; Solovyov 1999, 129.
5. Ol'govskij 2001, 94.
6. See, e.g., Blavatskij, Košelenko & Kruglikova 1979, 12-13.
7. See, e.g., Ol'govskij 1986, 90; Smekalova & Djukov 2001, 107.

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