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A ROMAN-ERA PRODUCTION CENTRE IN PAVLIKENI, BULGARIA, AND THE KILNS FOUND THERE

Kalin Chakarov
"St. Cyril and St. Methodius" University of Veliko Tarnovo

The article presents the results of the excavations of ceramic kilns, conducted by the author, in the town of Pavlikeni, situated in the central part of northern Bulgaria. In the course of three rescue archaeological campaigns, nine Roman kilns were excavated. They were partially damaged by infrastructure activities in the modern town, but nevertheless provide valuable information about their construction and functions in the Roman settlement beneath the north western part of Pavlikeni, which was initially studied by the Bulgarian archaeologist Bogdan Sultov (1930–1982). Most of the kilns are of the double-chamber type. As is borne out by clay plastering and repairs, the kilns were used as production installations. When they stopped functioning, they were turned into rubbish dumps. Later on the terrain was levelled and used as a construction site and for the making of new kilns. The excavated kilns were in use in the second half of the second century CE and probably in the early third century CE. The period in which they were in operation could be determined with greater accuracy after the publication of the results of the analysis of locally excavated pottery. The ceramic production centre of Pavlikeni was among the most important ones in the Roman provinces of Thrace and Lower Moesia.
Keywords: Roman era, settlement, ceramic production centre, kilns, Lower Moesia, Thrace.

Situated in the central part of northern Bulgaria, the region of Pavlikeni (fig. 1) has long attracted the attention of archaeologists studying the Lower Danube during the Roman era. The work of the Bulgarian archaeologist Bogdan Sultov (1930–1982) has greatly contributed to that tendency. He studied ceramic production in the local urban and administrative centre of Nicopolis ad Istrum and conducted several archaeological excavations in the vicinity of Pavlikeni. His most important excavations took place in and near Varbovski Livadi, situated at a distance of about 6 kilometres to the north west of Pavlikeni (Sultov, "Ceramic" 22–25), and in the village of Butovo (Sultov, "Ceramic" 25–30). Varbovski livadi and Butovo are the largest Roman-era ceramic centres in Lower Moesia and Thrace to have been excavated so far. In the former, Sultov uncovered 51 kilns (Vladkova 17)[1] and in the latter, 38 ("Ceramic" 26). Yet another ceramic production site was uncovered in Urushkite Lozya near the town of Byala Cherkva. It was an architectural complex with kilns for ceramic building materials (Sultov, "Pavlikenskiyat" 27). All three sites are quite close, within about 6 to 10 km from one another.

In 1959, Sultov conducted rescue excavations of another Roman-era settlement which lay beneath the north western part of the modern town of Pavlikeni (Sultov, "Prinos" 7–16) (fig. 2). The present study deals with the function of this site as a ceramic centre and uses as a point of departure a hypothesis which Sultov formulated and which was most probably based on the terracotta moulds found during his excavations (Sultov, "Prinos" 15).

[1] In 2014 the Museum of History in Pavlikeni, the University of Veliko Tarnovo and the Regional Museum of History in Veliko Tarnovo undertook excavations in Varbovski Livadi. Bogdan Sultov had carried out pioneering research in the same locality 35 years earlier. For the archaeological reports on the excavations, see the relevant sources in the bibliography.

CORRESPONDENCE: Kalin Chakarov, PhD student, Department of Archaeology, University of Veliko Tarnovo, 2 Teodosi Tarnovski St., Veliko Tarnovo 5003. @ kalinsbicke@abv.bg

A brief overview of the publications on Roman-era findings in Pavlikeni shows that stray finds from the town or its surroundings had been reported many times before 1959. The most interesting among them are four statuary groups of Dionysus and his *thiasus* (IGBulg. 699), one grave statuary group of Sol and Luna (ILBulg. 426), one of Heracles (ILBulg. 421), a votive plaque of Nemesis, two marble *exagia* (Filov 23–45, No. 20–24, 29, 40; Vladkova 10) and an altar with a dedication to Jupiter Sabazius and Mercury (IL. Bulg. 423).[2] Unfortunately, it is impossible to identify the exact place in or around Pavlikeni where they were found. Some other Roman artefacts related to the finds in or around Pavlikeni have also be found. The names of the localities where they have been found are mentioned in some publications (Filov 23–30; Sultov, "Pavlikenskiyat" 17). One of the sites is known as Latinskite Grobishta (Latin Cemeteries). A grave *stella* was found there (ILBulg. 422). The localization of this place is still a matter of conjecture. One possibility might be the Roman settlement in Beli Bryag, situated about 1.2 kilometres north east of Pavlikeni. It has been suggested that this was a Roman villa where some ceramic production took place (Vladkova 9; Sultov, " Pavlikenskiyat" 20, note 11). To the south west of the site are situated five burial mounds, which were most probably part of its cemetery.

The remains of a mausoleum were found in the yard of the cardboard factory in Pavlikeni (Vladkova 8). They are situated in the southern part of the town. There is a burial mound on the site now. About 1 kilometre south east of it, the remains of a building were found and 2 kilometres away in the same direction from the factory, there is another burial mound.

A detailed analysis of the data and the results of the rescue excavations,[3] conducted by the author of the present article,[4] shows that the settlements in Beli Bryag and Lako Dere in the vicinity of the cardboard factory and the site beneath Pavlikeni are three separate ones. The main reason for that conclusion is the fact that during three rescue archaeological excavations, conducted prior to the renovation of the water and sewage system of Pavlikeni, Roman-era remains were found in the north western part of the town (figs. 2-3). However, no remains were found in the vicinity of the other three settlements.

The site in Pavlikeni[5] is situated along the right bank of a small river (fig. 2).[6] Clay deposits were found at this site in the form of yellowish-brown soil and yellowish-green loess or marl,[7] situated beneath a humus level. The place was not chosen by accident but quite intentionally. About 500 metres to the north are situated the clay quarries of the old ceramic factory of Pavlikeni. This shows that production was carried out in the same place where resources such as clay and water were found.[8] Structures[9] or concentrations of single findings were uncovered in the following locations: 3 and 19 Vassil Nedkov St., 13 Dunav St., and Hristo

[2] Another dedication to Jupiter has also been found near Pavlikeni (IL. Bulg. 425), in Lako Dere, about 2.6 kilometres north west of the modern town.

[3] The kilns and the architectural remains found in 2015 and 2016 were partially or almost totally damaged by the company that renovated the sewage system of the town in 2015. The Museum of History in Pavlikeni was not informed by the company that structures of archaeological interest had been found. A visit to this part of the town, made by the author of the present article, revealed a huge amount of ceramic shards on the modern terrain. In addition, local people and company workers provided information about kilns that they had seen. The Museum of History in Pavlikeni apprised the relevant authorities at the Bulgarian Ministry of Culture about the irresponsible attitude of the company. As a result the company had to remove some of its installations so that excavations could be carried out.

[4] The author would like to express his gratitude to his colleagues Assoc. Prof. Dr. Deyan Rabovyanov, Dr. Zhulieta Gyuleva, Stoyan Mihaylov, PhD candidate Plamen Doychev and Stanislav Marchovski, who took part in the excavations.

[5] In some recent publications the site in the north western part of Pavlikeni is said to be one out of a total of seven similar sites

(see Tomas 151–153). It should be noted that some of the established sites, like No. 3, for example, totally differ in chronology and spatial location. The fourth-century tomb at Karnabunar along the Sofia-Varna railway line (see Tsarov 106–116) is situated at approximately 2.5 kilometres aerial distance from the Kopanata Mogila *tumulus* (dated between the second and third centuries CE). On the other hand, the locality Latinski Gobishta is still impossible to localize with any precision. The name could refer to the area of the *tumuli* at Beli Bryag and/or to that of the Cooperative Farm.

[6] Unfortunately, the river in question does not bear any officially approved name. The locals call it "Dereto" or "Pavlikenskoto Dere"; "dere" is a Turkish word meaning a small river.

[7] No soil analysis has been carried out.

[8] The same goes for the ancient production centres in Varbovski Livadi and the village of Butovo.

[9] All structures studied by the author have been partially or totally damaged by infrastructure activities. This is the reason why most of them were excavated in real cross-sections.

Botev St. (starting from the crossroad with Vassil Nedkov St.) and Dondukov St. (starting from the veterinary clinic up to the crossroad with Hristo Botev St.) (figs. 2–3). Nine Roman-era kilns were excavated: three at 13 Dunav St. and six at 19 Vassil Nedkov St. (fig. 3). They form two concentrations of kilns, situated approximately 150 metres apart. Both places with kilns are between 40 and 100 metres away from the small river. A note that Sultov made concerning the structures at 3 Vassil Nedkov St. reveals that the owners of the property had found "fireplaces with remains of burnt soil and dust and a lot of small clay lamps" while ploughing their garden (Sultov, "Prinos" 9). This probably means that the owners found kilns with lamps. If the assumption is correct, this means that those were the furthest kilns from the river (about 300 metres).

The best preserved kilns were found at 19 Vassil Nedkov St. (fig. 3). Three of them (Nos. 1, 2/3, 11)[10] are double-chamber kilns (figs. 4–6, 11, 12, 15–17). They have an ante-kiln pit, an arch-shaped fireplace, a lower chamber, a horizontal grate and an upper chamber. Of those three kilns, No. 1 (figs. 4–6) and No. 11 (figs. 7–10) provide most information about kiln construction. No. 1 is dug into the virgin yellowish-green loess and partially into the archaeological layer. Its lower chamber is in the shape of an oval. The orientation is along a north-south axis and the fireplace was most probably situated in the northern part. The thickness of the wall is between 0.05 and 0.10 metres. The contact surface with the loess layer is reddish in colour and the inner surface is brownish and has a harder structure. The wall of the upper chamber has two layers of plaster which are between 0.02 and 0.04 metres thick. The height of the lower chamber is between 0.28 and 0.35 metres and the thickness of the grate is between 0.10 and 0.20 metres. The upper chamber is 0.80 metres high and 1.35 metres wide. Kiln No. 1 has no supporting pillar at the centre; nor is it joined to the walls in any way. The horizontal grate has only one surviving opening with a diameter of 0.07 metres and three layers of plaster. The kiln was in all probability fully dug into the ground. Only a small part of the upper chamber must have been visible on the terrain. The kiln was probably filled with raw materials through the opening and it was out of the same aperture that the ceramics were taken out. This opening must have been covered with a lid which also acted as a check valve for the influx of oxygen.

The structure of kiln No. 11 (figs. 7–10) is almost the same. It is better preserved in comparison with No. 1: the fireplace and the ante-kiln pit have survived. They both face south, that is, they are turned in the direction of kiln No. 1. No. 11 is smaller in size: the height of the lower chamber is 0.23 metres, the thickness of the grate is between 0.08 and 0.12 metres, the upper chamber is between 0.22 and 0.33 metres high and 1.0 metre wide. In contrast to kiln No. 1 (figs. 4–6), No. 11 (figs. 7–10) has a central supporting pillar which is shaped like a column and is 0.30 metres in diameter. Kiln No. 11 must have been constructed later than kiln No. 1, and this is indicated by the difference in their levels of sinking, the position of the ante-kiln pit of No. 11 and the northern wall of No. 1.

Kiln No. 2/3 (figs. 11–12, 15–19) is quite similar to kilns No. 1 and 11. As it was cross-sectioned through the middle by the digging machine during excavations, it was recorded as two kilns: one visible in the eastern profile of the trench (kiln No. 2) (figs. 11, 12, 15, 18) and one situated along the western wall of the trench (fig. 4). The confusion is increased even more by the fact that both have fireplaces and ante-kiln pits; the ante-kiln pit of No. 2 faces south and that of No. 3 faces north. After studying the kilns, the present author arrived at the following interpretation: at first the fireplace and the ante-kiln pit must have been on the southern side of the kiln; as they stopped functioning, new ones were constructed on the northern side of the kiln. The earlier ante-kiln pit, which is deeper than the kiln, was filled with rubbish. Kiln No. 5 was constructed in the earlier ante-kiln pit (figs. 13–14). The later ante-kiln pit of Nos. 2/3 is almost on the same level as the bottom of the lower chamber of the kiln.

Kilns of a similar type have been found in many Roman-age sites throughout Lower Moesia and Thrace. The nearest ones are in Varbovski Livadi, near Pavlikeni and Butovo (Sultov, "Ceramic" 25–30). The kilns found in Kashlata near the village of Hotnitsa, Veliko Tarnovo District (Sultov, "Ceramic" 18–21) and in the village of Pet Mogili, Shumen District (Antonova and Atanasov 28–31), are not much different. Double-chamber kilns were also used in the village of Karanovo, Sliven District, in the fourth century CE (Borisov 281–336), as well as near Hotnitsa in the early Middle Ages (Aleksiev 55–60).

Kilns Nos. 4, 5 and 9 are different from Nos. 1, 11 and 2/3. They were almost totally destroyed and the information about them is scanty (figs. 20–24). Besides, they are situated higher up than the ones that

[10] The numbering of the kilns is based on the succession of discovery. Numbers 6 and 7 date back to the nineteenth and twentieth centuries and that is why they are not part of this article. Numbers 2 and 3 are most probably one kiln, with different construction periods.

were discussed so far. Things are rendered more difficult by the fact that kiln No. 5 cuts off the ante-kiln pit of No 2/3. On its other side No. 5 is cut off by a trench, situated along a west-east axis, which is 0.50 metres wide and 1.15 metres deep. That was probably part of an ancient wall from which stone material was removed later on. These three kilns must have been half dug into the ancient terrain and were constructed later than Nos. 2/3. Unfortunately, it is impossible to determine what type of kilns they were. We encounter a similar problem with kilns Nos. 8,[11] 10 and 12 (figs. 25–29), found at 13 Dunav St., because only small parts of them have survived on account of building activities in the second half of the twentieth century and in 2015.[12]

All kilns, found at 19 Vassil Nedkov St., were filled with waste after they had stopped functioning. The waste included ceramic shards, pieces of metal tools and bronze figurines, bones and soil. Apparently, after the kilns had outlived their usefulness and were past repair, they were abandoned and turned into rubbish pits while new kilns and buildings were erected on the already levelled terrain (fig. 3). The plan of the excavated building remains at 19 Vasil Nedkov St. shows that the kilns could have been situated close to the walls of various local houses and other buildings. Alternatively, the walls could have been positioned over the kilns.

Functions and Dating of the Site

According to a hypothesis, the site beneath the modern town of Pavlikeni was a road station (Vladkova 10). This hypothesis is partially confirmed by the fact that important roads still run through the region of Pavlikeni. The site must have been a production centre which mainly specialized in ceramics but other artefacts, such as religious stone objects, must have been manufactured as well (Sultov, "Prinos" 15). The presence of *exagia* (Sultov, "Prinos" 9–12) and the considerable number of production installations indicate that the products were intended for sale rather than for private use. The detailed analysis of the kilns, which the present author has undertaken, proves that not all of them were used at the same time but some were constructed later. An analysis of the Varbovski Livadi production centre reveals a similar situation:[13] the local kilns were used intensively and new kilns regularly replaced old and overused ones. The presence of nine excavated and probably more destroyed kilns at the Roman site in the north western part of Pavlikeni shows that the site played an important role in the region's ceramic production between the second and third centuries CE.

The Pavlikeni production centre functioned from the middle of the second until the early years of the third century CE. The earliest coin found by Sultov was minted during the reign of Antoninus Pius (138–161) ("Prinos" 15). The present author has found another coin which was similarly minted under the same Roman emperor. The rest of the coins, which have been found in the region, date back to the time of the Severan dynasty, and were for the most part minted during the reign of Caracalla (211–217), although some were issued under Severus Alexander (222–235). Only one coin dates back to the reign of Gordian III (238–244) (Sultov, "Prinos" 15). Taking into account all other data from this site, we may assume that the production centre functioned from the last decade of the second until the first three decades of the third century CE. It was thus an important hub of ceramic production, situated in close proximity to Nicopolis ad Istrum, a town of key importance in the province of Lower Moesia.

Catalogue of the Kilns[14]

Kiln No. 1. (figs. 3–6)

Dug into sterile yellow-green loess and partly into a cultural layer, this kiln is registered at a depth of 0.70 metres below the modern level. Kiln No. 1 is north-south oriented (azimuth 180°). It has a flattening-oval

[11] Only a small part of kiln No. 8 has survived in a narrow modern trench and this is the reason why it is not represented either by a picture or by a drawing.

[12] Two of the three excavated kilns at 13 Dunav St. are probably parts of the lower chambers of other two-chamber kilns. Both of them were dug into the green-grayish loess, their outer surface is of reddish burnt clay and the inner one has a slag structure. The entrance of kiln No. 10 (fig. 9) probably faced east, and that of kiln No. 12 (fig. 10) faced south or west; we make such an assumption because the surviving parts point in these directions. The third kiln (No. 8) was very badly damaged and only a very small section of its wall (reddish burnt clay) has survived. The author learned from local people that prior to some construction works, which were carried out in the 1980s, there were many other kilns. Unfortunately, there is no other information about them.

[13] Personal observations of the author.

[14] The kilns are presented in the order of their location, not in the sequence of their numbering. The absence of Nos.6 and 7 is due to the fact that they were discovered in the late nineteenth and early twentieth centuries.

profile. The southern wall is almost vertical, with its top tilted inward. The other wall is also almost vertical, with a slope inward. At the base of the northern part there is a semi-oval protuberance to the north. The wall itself appears as a strip of burnt red soil, contrasting with the background of yellow loess, the dark cultural layer and the kiln filler. The thickness of the wall is between 0.05 and 0.10 metres. On the inside the wall is baked more strongly and is 0.05 metres thick; it is covered with glazed clay. In the profile of the wall of the upper chamber two clear plasters, between 0.02 and 0.04 metres thick, are clearly visible. The dimensions of the kiln are: preserved wall height 1.40 metres (south), 1.10 metres (north), highest preserved height 1.50 metres, base width 2.05 metres, width above the semi-elliptical edges 1.70 m. At the centre of the kiln, at a height of 0.20 metres from its bottom, there is a layer of glazed clay, which is about 0.20 metres thick, and fragments of *tegulae*. The upper chamber of the kiln has a diameter of 1.35 metres. Two thirds of the kiln have been preserved. A piece of a grate, which is 0.08 metres thick, has been discovered in the southern part of the kiln; a new grate must have been built over it. The height of the lower chamber is 0.28 metres at the northern end and 0.35 metres at the southern one. The new grate's thickness is between 0.10 and 0.20 metres. At least three plasters are visible. The walls of the upper chamber show grooves from human fingers which must have been left during plastering.

At a height of 0.50 metres from the bottom of the grate, in the north eastern part of the wall there is an interruption, which is 0.45 metres wide and 0.30 metres high. In the profile of the wall there is a horizontal opening. Two appliqués of ceramic vessels representing human faces have been found in the filling of this interruption, consisting of light brown soil and a large number of fragments of ceramic vessels. A small amount of animal bones and small slate stones (sandstones) have been found in the kiln; the stones' red colour is probably due to their continuous exposure to fire. They may have been part of the kiln cover.

There is a large amount of kitchen and tableware ceramics in the upper chamber. The upper chamber bottom is at 114.45 MASL.[15] The height of the upper chamber is 0.80 metres and of the lower one, 0.35 metres. The grate has an opening which is 0.07 metres in diameter and is located near the southern wall of the kiln. In the middle and at the south east end, there are two large perforations, probably disturbances, with dimensions of 0,25 x 0,25 metres and 0,40 x 0,20 metres.

The lower chamber is filled with soil, fragments of ceramic vessels and animal bones. The almost complete lack of archaeological materials in it testifies that the kiln was used as a rubbish pit when it ceased to be used for its original purpose.

The *praefurnium* of the kiln is at the northern end. The semi-ellipsoidal protuberance of the wall in this part, registered at the opening of the kiln, is actually part of the vault of the tunnel, which was cut by the excavator machine. The preserved height of the *praefurnium* is 0.44 metres. In front of the vault, inside the chamber, there are remains from an earlier grate or from a supporting structure that must have been used to block the hot air flow into the kiln.

At the bottom, there is a large fragment of the *tegula* in the north west. The head of a bronze statuette (Dionysus) has been found next to it. In the central part of the upper chamber two fragments of a goblet with two handles and decoration in the Barbotino style have been found. In the upper south eastern part of the chamber a better preserved fragment of the mouth of a pot with one handle has been found. It is photo-documented *in situ*. The next find is the rear part of a ceramic toy horse. A bronze pendant of a military belt has also been found approximately at the level of the pot. Next to them, a part of another ceramic horse has been discovered.

Kiln No. 1 cuts off a sunken structure of dark soil with plenty of pieces of ceramic pots and a lot of fragments of *tegulae*. The sunken structure is cut off also by wall No. 1. Many fragments of pots and lids and a whole profile of a cup with two handles have been found in the sunken pit.

Kiln No. 11 (figs. 7–10)

Kiln No.11 is situated to the north east of kiln No 1. It is dug at a depth of 0.70 metres (115.30 NMW) above the modern terrain. It continues at a depth of 0.70 metres (114.60 MASL), and is 0.60 metres wide along a west-east axis. In the northern profile of the rainfall shaft trench, the kiln looks like a semi-arch, open to the west. It is dug into sterile yellowish loess. Above it there is a layer of light brown soil, which is 0.22 metres

[15] All levels are in the Baltic metric system.

thick. The asphalt pavement floor is situated on top of this layer. The dimensions of the kiln are the following: height – 0,70 metres, retained width – 0,60 metres. The kiln wall appears as a strip of burnt reddish soil. At the base of the strip there is a thin layer of ash, which is 0.03 metres thick. The *praefurnium* must have been located there. After the present author's investigation had been completed, it was found that the upper and lower chambers were cut along a north-south axis. The lower chamber has a height of 0.23 metres, the grate is between 0.8 and 0.12 metres thick. Three or four plastering layers of the grate were registered, as fragments of tiles were used for the last one. Openings were not found. The walls of the upper chamber have been partially preserved. The southern wall – at 0.33 metres above the grate level - is the highest whereas the northern wall is only 0.22 metres high. The filling of both chambers is similar but there is a larger amount of ceramic shards in the upper chamber. The bottom of the lower chamber is inclined to the north (114.70 MASL) and to the south (114.67 MASL). The levels of registration of Kiln No. 11 are: 115.30 MASL (southern) and 115.22 MASL (northern). The kiln is dug at 114.60 MASL; the upper level of the grate is 115.03 MASL (northern), 115.05 MASL (medium) and 114.98 MASL (southern). After the filling of the upper and lower chambers, it turns out that the kiln has a central support pillar with a diameter of 0.30 metres. The diameter of the upper chamber of the kiln is 1.00 metre. More than two thirds of the kiln have been preserved, which means that only a small part of it was cut off by the excavator machine.

In the southern profile of the rainfall shaft and to the east of the main collector, a layer of dark soil is visible. It begins north of kiln No. 1. Its highest level is 114.12 MASL, which is at 1.48 metres above the level of the sinking of kiln No. 11. It is possible that this is the ante-kiln pit of kiln No. 11.

Kilns Nos. 1 and 11 are close to each other. If the sunken structure south of kiln No. 11 is its ante-kiln pit, it can be assumed that No. 11 is later than No 1. In support of this, the northern wall of kiln No. 1 was probably cut off by the digging of the ante-kiln pit of No. 11 as the beginning of the sunken structure and the upper level of the wall of kiln No. 1 are situated at the same level.

At approximately 17 metres south west of kilns Nos. 1 and 11 and wall No. 1, there is another concentration of kilns. One of them is listed as No. 2.

Kiln No. 2 (figs. 11, 12, 15, 18)

Kiln No. 2 is visible in the eastern profile of the trench, at a depth of 0.80 metres below the modern level. It is dug into sterile yellowish-green loess. The facility is oriented along the south-southwest – north-northeast axes (30° azimuth). A small semi-arch from the original kiln and part of the grate have been preserved. The latter has four plasters. Three openings in the grate, each of which is 0.07 metres in diameter, are located on the border between the grate and the wall of the kiln. They are approximately at an equal distance from one another in the southern, middle and northern parts of the kiln. Plasterings are visible not only on the grate, but also on the wall of the kiln. They are in the form of horizontal and oblique grooves (each about 0.02 metres wide) and were caused by fingertips. The profile is almost rectangular and looks like a longitudinal cross-section, situated along a north-south axis. The wall of the kiln is visible as a strip of reddish burnt soil and is between 0.15 and 0.20 metres thick (0.20 metres is the thickness of the southern wall). The inner surface of the camera stands out as a thinner strip with a thickness of 0.04 metres. It gives the impression of being glazed by slag on account of the high temperature maintained in the kiln. The southern wall is vertical and is preserved at 1.00 metre above the bottom level of the kiln. The highest preserved part of the kiln is at 115.48 MASL. The grate level is 115.69 MASL. The bottom of the lower chamber of the kiln is 114.65 MASL in the northern part and 114.51 MASL in the southern part, that is, there is a difference of 0.14 metres between the two parts. At 0.38 metres above the base of the kiln there is also a burnt reddish soil surface. Between it and the base there is a layer of the same kind as the filling of the kiln. The southern wall begins above this strip. At the base of the lower chamber there are two horizontal holes: one in the north and one in the middle. They must have been connected to the kiln as both show marks of burning. A semi-vault from the arch of the *praefurnium* has also been preserved. It is 0,75 metres long and 0,38 metres high. The lower part of the kiln protrudes by 0,70 metres to the south. The difference between the slope from the north (114.71 MASL) to the south (114.51 MASL) is 0.20 metres. The ante-kiln pit begins south of the protruding reddish strip of burnt soil. It is dug into sterile loess. Its length along a north-south axis is 2.10 metres. Its filling contains a large amount of ceramics. The depth reached from the base of the *praefurnium* is 0.70 metres (113.84 MASL). The kiln has not been studied down to the very bottom because of underground water coming out and an installed sewer pipe.

Kiln No. 5 (figs. 13–15)

This kiln is preserved as a hemispheric strip of burnt reddish earth, better visible in the southern part, above the ante-kiln pit and the *praefurnium* of kiln No. 2. Like kiln No. 4, this furnace is also dug up at a higher level, and cuts across kiln No. 2. It is dug at 0.80 metres below the modern terrain (115.92 MASL), at 115.01 MASL. Above the kiln's semi-arch there is a layer of fat black soil (probably buried humus), which is 0,20 metres thick. The asphalt bed is situated over it.

The southern and eastern walls and the bottom of the chamber have been preserved. The walls appear as highly glazed surfaces and the bottom as a strip of burnt reddish earth which is 0.07 metres thick. The preserved height is 0.75 metres. The bottom of the kiln is at an elevation of 115.08 MASL. The northern part is cut by an ancient trench, which is 0.50 metres wide and 1.15 metres deep, and may have constituted the bed of a wall which was in all probability destroyed by local people who re-used its stones for their own construction purposes. The kiln is filled with dark earth, mixed with kitchen, tableware and building ceramics. A part of an iron horse bridle has been found in the filler layer of kiln No. 5.

Kiln No. 4 (figs. 20, 21, 24)

Kiln No. 4 is located east of kiln No. 9. It is registered in the western profile of the excavation trench, at 0.60 metres below the modern terrain, with an elevation of 116.03 MASL; the sunken level is at 115.5 MASL. Most of the kiln was destroyed during the laying of the modern asphalt pavement. The bottom part of the lower chamber is preserved as a semi-arch of a burnt reddish colour, which is between 0.10 and 0.20 metres thick at the base. Above it there is a glazed layer which is about 0.20 metres thick. The modern layer is situated above the glazed one. The orientation of the kiln is along an east-west axis (azimuth 270°). The length of the burnt reddish strip is 1.05 metres and it is positioned along a north-south axis. North of it, but at a lower level, there is also a strip of reddish burnt soil which is 0.10 metres thick. A glazed layer, which is 0.05 metres thick, is positioned above it. This may have been part of a *praefurnium* or of another kiln. At the top there is a thin layer of dark earth composed of kitchen and tableware ceramics, coals and pieces of slag. Both structures are at a higher level than kilns Nos. 1–3. The bottom of the lower chamber is at 114.83 MASL. Part of the kiln's southern wall has been preserved. At about 0.40 metres to the north there is a vertical protuberance, which was probably part of a pillar. Measured from the bottom of the camera, it appears to be 0.25 metres high. The preserved strip of the kiln was perhaps part of the eastern half of the facility. This explains the considerable thickness of the burnt reddish strip at the base of the wall. The kiln is 2.00 metres wide. The so-called supporting pillar is located at 0.45 metres north of the southern wall and at 1.05 metres south of the northern wall. It is about 0.50 metres wide. On the northern wall of the kiln there is a tiling of vertically placed *imbrices*. The kiln must have had an entrance facing east. Its bottom is at 115.66 MASL in the southern part and 115.50 MASL in the northern one, and there is a difference of 0.16 metres between the two parts. This suggests that the *praefurnium* must have been in the eastern part and probably occupied a space of 0.50 metres between the two walls of the kiln. The iron rings of a door or some other sliding device were found in kiln No. 4.

Kiln No. 9 (figs. 22–24)

The kiln was dug at 0.25 metres above the bottom of the ante-kiln pit of kiln No. 2 or kiln No. 5. It was dug at a depth of 0.65 metres below the modern terrain. A semi-arch, which is 0.7 metres thick, is the best preserved part of the facility. The preserved width of the kiln is 1.35 metres and the height measured from the bottom is 0.25 metres. The level of detection is at 115.88 MASL and the bottom elevation is at 115.59 MASL. The inner surface is glazed because of the kiln's constant exposure to high temperatures. The filler is a blackened finger with a small piece of bituminous ceramics. Above there is a layer of sand which is attached to the asphalt or water pipe substrate.

Kiln No. 8

The kiln is situated at 13 Dunav St. in front of a block of flats erected in 1989. A narrow channel, which is 0,40 metres wide and 1,10 metres deep, was dug by the builders, and is situated between the street and the block. The remains of the kiln have been found in the narrow trench. They stand at 7.30 metres west of the pavement curb and point in the direction of the block, which is in the northern profile of the trench. A small part of the

arched wall of the furnace has survived and is recorded as being 0.90 metres below the modern terrain. Its visible width is 0.40 metres and the height of the preserved wall is 0.15 metres. There are no remains of the kiln in the southern profile of the trench. This part of the kiln must have been destroyed by an old shaft trench which was connected to the block of flats. A dark brown layer containing Roman ceramics is found to the east of this kiln, in the trench profiles. This layer is recorded as being between 0.40 and 0.80 metres deep and is probably the ante-kiln pit of the kiln that faces east and is close to the small river. Under this layer, at a depth of 0.80 to 1.10 metres, only yellowish-brown loess has been found. A large number of Roman ceramic fragments, pieces of burnt plaster and slag and broken bricks and tiles have been found in the earth that was dug out of the trench. These fragments were probably embedded in the waste which must have accumulated in the kilns that were dug into the loess. Amidst the debris the author of the present text found a part of the mouth of a glass vessel with an embossed decoration.

Kiln No. 10 (figs. 25–27)

Kiln No. 10 must have suffered considerable damage. It is situated near kiln No. 8 which has also been badly damaged. The damage was caused by the repairs of the sewage system around the middle of the twentieth century and the construction of the block of flats in 1989. The pavement curb lies directly on top of the ruins of the kiln whose bottom level is at 114.55 MASL.

The furnace of the kiln must have been dug into sterile yellow-green loess at 114.13 MASL. The dimensions of the preserved facility are the following: longitude of 1.70 metres along a west-east axis and of 0.70 metres along a north-south axis, and maximum preserved height of 0.59 metres. The kiln is visible through a section constituting a red burnt strip of earth. Above it there is a thin layer of glazed clay from the bottom of the chamber. A strip from the chamber, which is 1.02 metres long and 0.42 meters wide, has been preserved. The eastern part of its bottom is at 114.65 MASL, the middle part is at 114.66 MASL and the western one, at 114.72 MASL. The difference between the above levels indicates that the damaged *praefurnium* and the ante-kiln must have been situated in the eastern part of the kiln. In its western part the bottom makes a vertical curve which is part of the wall of the kiln. Above the bottom there is a layer of burnt red earth, mixed with a brown layer and small slate stones (sandstones) which are red in colour because of their systematic exposure to excessive heat. In the eastern part, the layer is 0.17 m thick and in the southern part, it is 0.10 metres thick.

Kiln No. 12 (figs. 28–29)

The kiln is situated at 13 Dunav St., a few meters north of kilns Nos. 8 and 10. It was badly damaged during the construction of the sewage network of Pavlikeni and the laying of the asphalt pavement in the second half of the twentieth century. It is located a few meters from the right bank of the small river in Pavlikensko Dere. A piece of reddish burnt soil left by the furnace, surrounded by slate stones, partly dug in sterile soil and in a cultural layer, has survived. The flanking east stones are at 114.11 MASL and the west ones, at 114.17 MASL. To the south west the bottom is at 114.00 MASL and the strip of the wall, which must have been situated there, is at 114.20 MASL. A small amount of kitchen and tableware ceramics from the second and third centuries CE were discovered in the filling of the kiln. The finds include two almost perfectly preserved pots. The structure under consideration may have been part of the bottom of the lower chamber of a kiln. The thickness of the strata is 0.44 metres, the preserved length along the west-east axis is 1.42 metres and the preserved width along the north-south axis is 0.90 metres. Wall fragments *in situ* with a thickness of 0.10 metres in the northern part and the absence of other wall parts in the eastern one indicate that the kiln probably had an entrance facing south or west. In the middle there are several fragments of bricks which may have been part of a pillar.

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