

STREETS OF NOVAE (MOESIA INFERIOR) DURING THE REIGN OF TRAJAN

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The time of Trajan's Reign – and especially the period of preparation for the invasion of Dacia – was characterized by an intensive military building activity along the section of the Danube bordering with the kingdom of Decebalus. The Lower Moesian legionary fortress of legio I Italica at Novae was not an exception. In that period the earth-and-timber fortifications were reconstructed in stone, a military hospital was erected in place of the dismantled Flavian baths, and also probably the basilica of the principia was built. These works were connected with rebuilding of the streets and elements of infrastructure related to them because a well-maintained street grid was crucial for communication inside the fortress.

The paper systematizes knowledge about the streets of Novae acquired as a result of many seasons of excavations during which they were rarely the main subject of works but were mostly dug out on the occasion of excavations of some more significant and spectacular constructions. Such a state of research allows us to draw some general conclusions about the technical and chronological details concerning streets of various ranks and purposes inside of Novae in the early 2nd century AD.

Key words: Novae, Legio I Italica, Limes, Streets, Trajan, Moesia Inferior, via principalis, via praetoria, via decumana, via sagularis, viae vicinariae

The legionary fortress at Novae has been excavated since the 1960s, its street grid, however, was not a subject of a wider study. The streets were surveyed mostly on the occasional exploration of various structures and thus sometimes they were not correctly documented and published. This, along with a character of the works (in case of the streets mostly sounding trenches), and the state of their pres-

ervation, caused a very fragmentary state of our knowledge on the routes of Novae. Nevertheless, the currently available data allow us to say a few words about the streets during the reign of Trajan which was a period of intensive construction works throughout the whole area of the fortress (Fig. 1).

VIA PRINCIPALIS

The *via principalis*, running from the west to east, was the most important street of Novae. The most data about it provided the excavations in the area of the East Gate (Archeologia 65: 179–182). The street was approximately 7.3 m wide (Archeologia 65: 179) which corresponds with the width of the West Gate's passage (about 8m) (Parnicki-Pudęłko 1990: 20) and has similarities with the observations made in the area of the later *groma* (Sarnowski 1995: 37–40). Near the East Gate the street was

flanked from both sides by sidewalks. The street to the north was porticoed, while the street to the south – at least 2.4 m wide and made of large stone slabs (Archeologia 65: 179) – seems to be under the open sky in the discussed section. There are, however, some hints that further parts of this sidewalk might have been covered for the drain was found next to them and it is possible that it transported the water from the roofs of portico. Moreover, the observations made in the area of *groma* indicate that the *via principalis* was porticoed from both sides. The street's dimensions correspond with

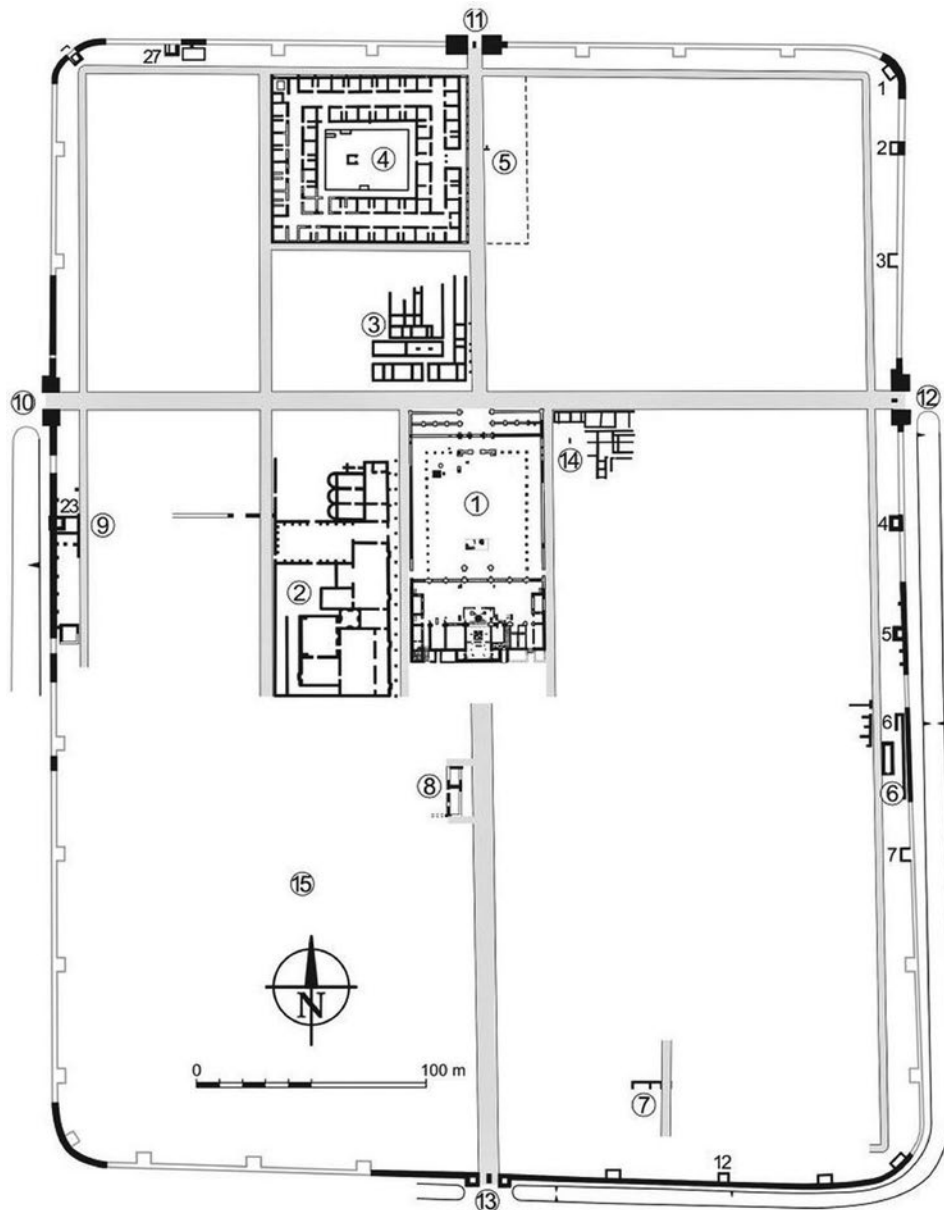


Figure 1. Novae. Legionary fortress in the 2nd and 3rd century (by T. Sarnowski, J. Kaniszewski & P. Zakrzewski. Based also on detailed drawings by M. Lemke and P. Dyczek. Archeologia 65: 178, Fig. 1). 1: Headquarters building (*principia*), 2: Bath house (*thermae*), 3: Officer's house, 4: Hospital (*valetudinarium*), 5: Granaries (*horrea*), 6: Water tank, 7: Cavalry barracks, 8: Praetorium(?), 9: Fabrica(?), 10: West Gate (*porta principalis sinistra*), 11: North Gate (*porta praetoria*), 12: East Gate (*porta principalis dextra*), 13: South Gate (*porta decumana*), 14: Barracks of the First Cohort (?), 15: Water pipeline trench (emergency rescue excavation of 2015). Figures along the curtain wall refer to the numbers of towers.

the data gathered in the area of the East Gate. Its overall width was 18 m, the street itself was 9 m wide while each of both porticoes was 4.5 m wide (Sarnowski 1995: 37–39; Fig. 2).

Unfortunately, there are no precise data to date the three street levels recorded in the area of the East Gate, however, if one can assume that the first level may be dated to the earth-and-timber phase, then the second could be dated to Trajan's reign. This street level is slightly higher than the preserved part of the north sidewalk's stereobate which should be connected with the earliest stone phase of the fortress (Archeologia 65: 179). The second street was paved with a small and medium size limestones laid on the layer of a loess mixed with brick rubble (Archeologia 65: 181). The analogies of the *via praetoria* (Archeologia 47: 63), as well as one stone slab covering the north-south running channel dated to that period found in the area of *via principalis* near the West Gate (Parnicki-Pudełko 1990: 21) also seem to confirm such a paving. The sewage collector, running from the southwest to northeast, was found beneath the north portico near the East Gate (Archeologia 65: 181). If the portico may be connected with the Trajan's age building activities, then

the channel should be dated likewise for the retaining wall of the portico was built directly above it.

VIA PRAETORIA (FIG. 3)

The trench in front of the entrance to the *valetudinarium* provided some data about the *via praetoria* (Archeologia 56: 149–151). The street in the period under discussion was slightly narrower than in its previous phase due to the construction of the new *horreum*. The overall width of the street was 10.28 m wide including portico (2.48 m) and stylobate (1.14 m) (Archeologia 56: 151). The 0.7 m wide waste channel – running from north to south – went through the middle of the street. Its north part was found near the North Gate (Archeologia 27: 141). The pavement was unfortunately destroyed in the late antiquity. In the area to the north of it the street, 8 m wide, was strengthened with a brick rubble and middle size stones, while its earlier (Flavian?) phase was not paved (Archeologia 47: 63). More interesting data about its construction provided the works near its crossing with the *via principalis* (Milčeva & Genčeva 1991: 24–35). The street, 6.4 m wide, was paved with a large stone slabs and had curbs made

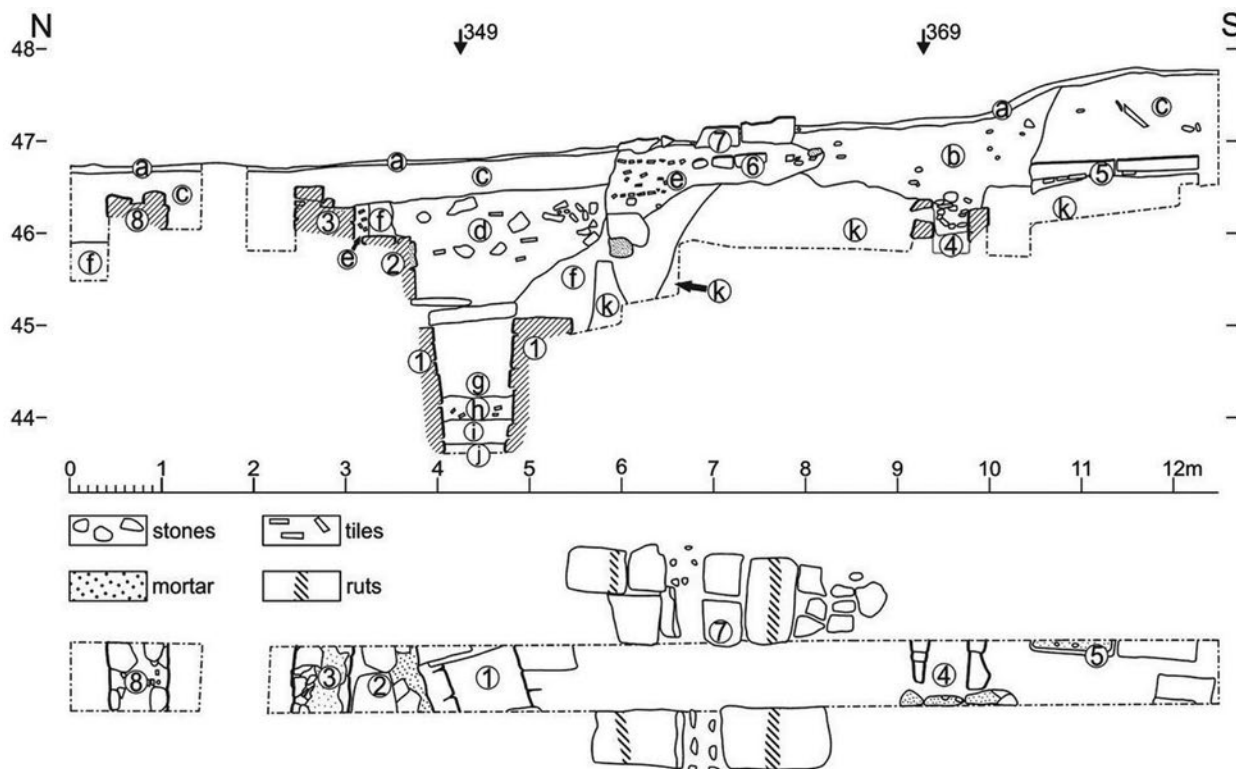


Figure 2. Trial trench across the *via principalis* next to the East Gate. Plan and section (by E. Jęczmienowski. Archeologia 65: 181, Fig. 5). 1: Side walls of the sewage collector, 2: Retaining wall, 3: Stereobate, 4: Stone gutter, 5: Sandstone slabs of the side walk, 6: Second street level (Trajanic?), 7: Third street level (stone slabs), 8: Late wall (stones in earth bonding), a: Post-excavation humus, b: Dirty greyish loess (tree root intrusion or robber trench), c: Dirty loess, d: Grey loess (robber trench), e: Compact yellow loess with first and second level of the street, f: Yellow-greyish loess (sewer trench), g-j: Dump (h), bottom (j – yellow loess) and landfill drainage layers (g, i), k: Compact yellow loess (virgin soil).

of massive stones on both sides (Milčeva & Genčeva 1991: 31). Near the curbs small drains were found, these drains transported the water from the roofs of porticoes that covered 1.6 m wide sidewalks paved with a yellow sandstone (Milčeva & Genčeva 1991: 32). Before the construction of the street large leveling works were undertaken in that area (Milčeva & Genčeva 1991: 32).

that was a walking surface or just a layer of ballast (Archeologia 31: 146).

Underneath the street level in the north trench traces of an earlier, earth-and-timber architecture were found (Archeologia 56: 145). They confirm the change of the *retentura's* street plan in the beginning of the 2nd century. Underneath the portico in

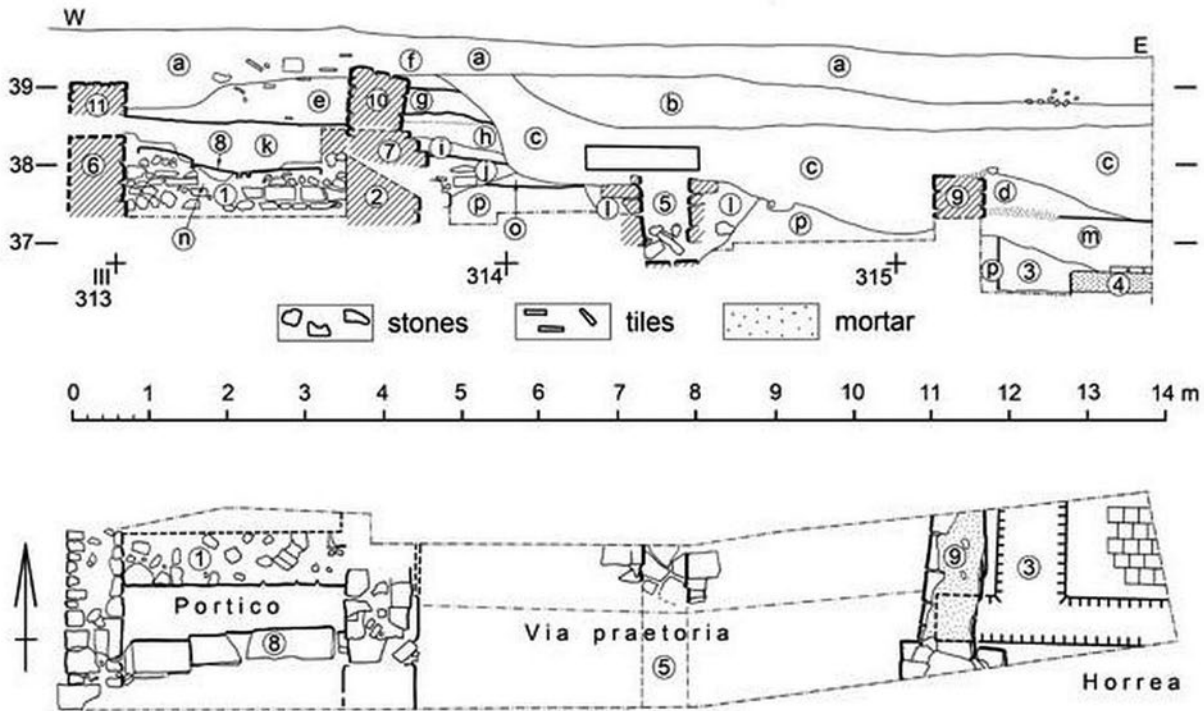


Figure 3. *Via praetoria*. Plan and section (by T. Sarnowski & A. Ryszkowski. *Archeologia* 56: 150, Fig. 10). 1: Partition wall (white mortar) of the Flavian bath, 2: Outer wall of the Flavian bath, 3: Ghost wall of Horreum I, 4: The sub-floor of Horreum I (grey mortar + bricks), 5: Street sewer, 6: Outer wall of Horreum II (white mortar), 10–11: Late loess-bonded walls, a: Top-soil, b: Grey loess, c: Late loess pits (dark grey loess), d: Dirty yellow-brown loess with lumps of broken tiles, e: Grey-yellow loess (dump) with broken tiles, f: Light grey loess, g: Yellow loess with broken concave tiles, h: Yellow-grey loess with charcoal, i: Destruction layer (broken tiles, mortar, charcoal), j: Foundation pit for the column socle, k: Light grey loess (dump), l: Sewer trench, m: Dirty dark grey loess with charcoal, n: Clean yellow-brown loess, o: Hard yellow loess with greenish patches, p: Natural soil.

VIA DECUMANA

Two trenches provided data about the *via decumana* (Archeologia 56: 145–148). We lack, however, the precise information on the Trajan's period. The street had one portico on the east side and its width varied (2.05 m in the northern trench R2 and 1.4 m in the southern trench R5) (Archeologia 56: 145). The overall width of the street with portico was about 8.25 m which corresponds with the width of the South Gate's passage in that period (Parnicki-Pudełko 1990: 47). Unfortunately we lack the data about its construction but, like the rest of the main streets, it should be paved with the stone slabs. Outside of the fortress, near the South Gate, the road made of brick fragments, stones and small pieces of mortar was found. But it's unknown if

the south trench a Flavian aqueduct, made of mortar bonded terracota and lead pipes, was found (Archeologia 56: 145).

VIA SAGULARIS

One of the best explored streets, as well as providing the most data on the early 2nd century, is the *via sagularis*. The most important works were undertaken in the area of the north curtain wall near the north-western corner of the fortress (Archeologia 59: 162–168) and some 100 m to the south of the West Gate (Ładomirski 1992: 42–62). In both places traces of the streets dating to Trajan's reign were found (Fig. 4).

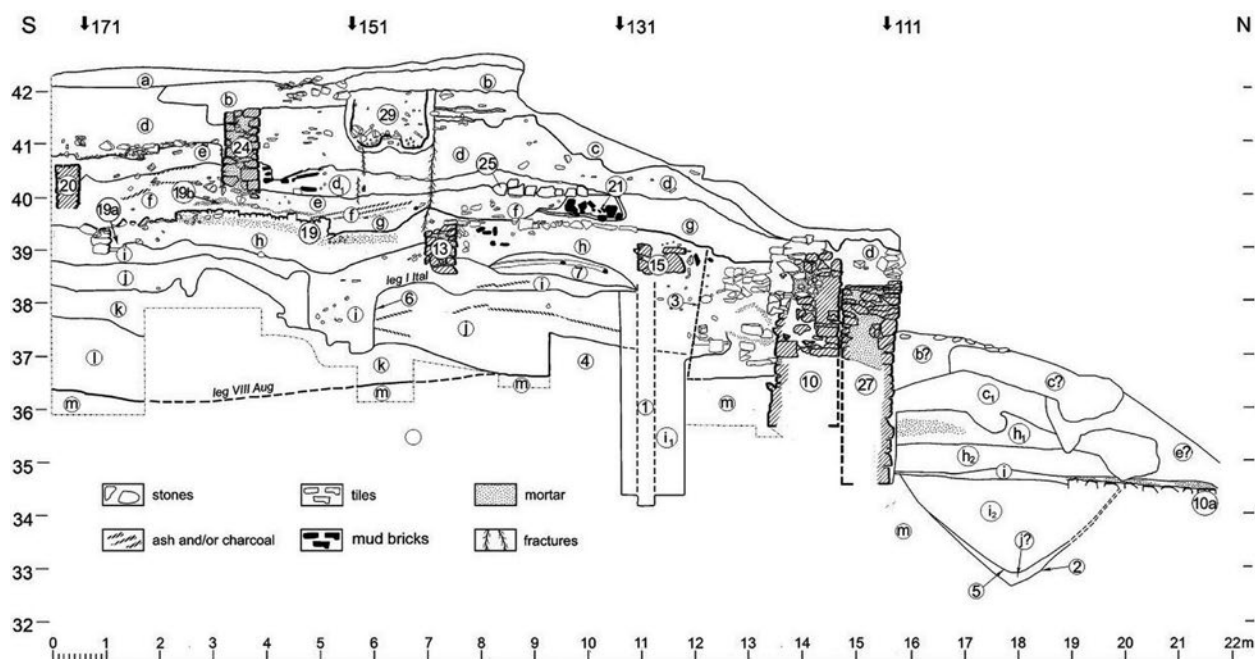


Figure 4. *Via sagularis* and northern defences – the most important layers and structures connected to the Trajanic street. Section (by A. Tomas & P. Zakrzewski. For the complete description please see *Archeologia* 59: 164, Fig. 11). 10: Trajanic curtain wall, 19: Trajanic *via sagularis* with a sidewalk, 19a: Street sewer, 19b: Post-Trajanic *via sagularis*, h: Yellowish, almost clean, compact loess with small lime lumps and broken tiles (Trajanic leveling layer), j: Light yellowish and brownish loess with burned, orange clay lumps, pieces of charcoal, traces of fire and numerous amphora sherds (late Flavian *via sagularis*?).

The street near the north wall was built some 8 m away from it, and occupied the place where earlier, Flavian street could function and is probably visible in the profile as a convex part of the one of the loess layers (*Archeologia* 59: 166). Above it the levelling layer, 0.6–0.8 m thick was put and directly above it the Trajanic street made of 0.2 m thick layer of ballast, that consists of pressed sand and pink mortar, and then covered with the pavement of medium and small stones. The street was 3.6 m wide and next to its south side a small gutter made of tiles and stones was made. On the north side, some 0.3 m deeper, a 1.8 m wide sidewalk made of pressed mortar was built (*Archeologia* 59: 167). Small construction differences may result from the terrain and maybe from dispersed development in that section of the *intervallum*. On the contrary to the north wall in the north-western corner of the fortress traces of a quite complex channel system, dated to the early phase of the fortress – so possibly Trajanic as well – were found (*Archeologia* 16: 159). The level of the slabs covering the channels would indicate the street level. Unfortunately we cannot tell much more about the street in that section, as well as about the chronology of its sections found near the north-eastern (*Archeologia* 56: 151–152) and south-eastern corners (Dimitrov *et al.* 1966: 99–103; Dimitrov *et al.* 1974: 149–154) as well as near the east wall of the fortress (Dimitrov *et al.* 1974: 161–170).

The Trajanic street near the west wall of the fortress is unfortunately not so well documented. It was slightly moved to the east in comparison to the earlier one which was made of stones, bricks and pottery fragments laid directly on the clay virgin soil (Ładomirski 1992: 48). The earlier street does not directly precedes the one dated to the early 2nd century for there is a hiatus between them (Ładomirski 1992: 48). Maybe it was closer to the walls in that period and some time later was moved back to the previous place due to the construction works in the *intervallum*? The fragmentary preserved Trajanic street runs from north to south some 10 meters from the wall, and was made of ballast of soil mixed with debris and stones overlaid with pavement of medium size fieldstones, broken and worked stones (sometimes reused) on which mortar was probably poured (Ładomirski 1992: 50). The exact dating of the street is unclear, it seems, however, that it was partially demolished when the north-south running channel was built (Ładomirski 1992: 51–52). The slabs covering it were unable to serve as a sidewalk, so soon after its construction, the channel was covered by the layer of earth on which the next phase of the street was built (Ładomirski 1992: 52–53). Unfortunately the dating of this phase is uncertain but it is sure that it should be dated to the 2nd century. If the channel was a part of the bigger Trajanic construction works, then probably this street level should be dated to this period as well. This street

was approximately 3 m wide and was slightly moved to the east in comparison to the earlier one. The ballast was made of brick debris with a little mortar and was 1 m wider than the actual street surface made of field- and broken stones put on the sides to mark the curbs while the rest was covered with the pressed layer of debris on which mortar might have been poured (Ładomirski 1992: 53–54).

VIAE VICINARIAE (FIG. 5).

During works, on various sections of Novae, local streets were excavated as well. The street east to the *principia* was 5.4 m wide with additional 3 m wide portico with stylobate to the east (Archeologia 34: 150). The overall width of this street was 8.4 m. Few street layers were registered and the second one is dated to the Trajan's time. This walking level is made of a compact layer of loess that was extracted during the construction of the walls of the *principia* and it covers the 1st century street (Archeologia 34: 152). Along the stylobate ran the

drain and through the middle of the street the bigger, southwest to northeast running channel made of stones (Archeologia 34: 152). On the other hand the channel from the earlier phase ran from north to south (Archeologia 34: 151). It may also suggest the change of the planning in the *retentura* in early 2nd century. To the west from the *principia* another porticoed street of the similar dimensions was found (Archeologia 31: 126). This time, however, the portico ran along the walls of *thermae*. It cannot be ruled out that a street ran along the rear side of the *principia*. Then the *propylon* found near the south-eastern corner of the *principia* would connect the street with the headquarters. The plinths of the columns mark the walking level before the erection of the stairs (Archeologia 65: 192).

To the west and south of the *valetudinarium* local streets were found. On the west side the Trajanic street running from the north to south was almost 5 m wide and its surface was made simply of a dark yellow loess with pieces of stones, pottery and mortar (Archeologia 38: Rys. 20). Some time later, dur-

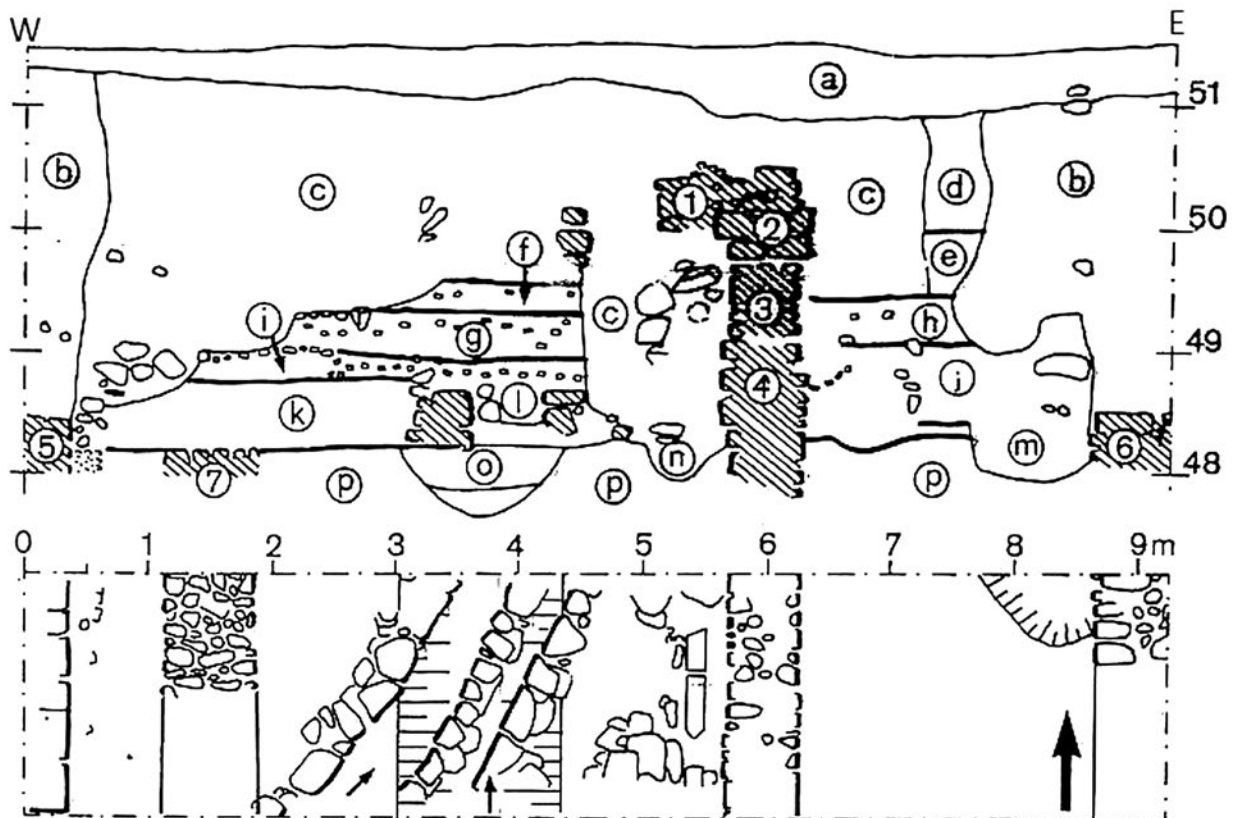


Figure 5. Street to the west of the *principia*. Section (by T. Sarnowski. Archeologia 34: 154, Ryc. 16). 1–4: Stylobate of the portico. Various phases (4 – Trajanic), 5: East wall of the *principia*, 6: East wall of the portico, 7: Sidewalk made of stones? (Flavian), a: Top-soil, b–d: Layers of grey loess, e: Fifth level of the floor in the portico, f: Fifth level of the street, g: Fourth level of the street, h: Fourth level of the floor in the portico, i: Third level of the street, j: Third level of the floor in the portico, k: Second level of the street. Compact layer of loess that was extracted during the construction of the walls of the *principia* (Trajanic), m: Pit, n: Drain (Trajanic), l: Filling of the channel running from the southwest to northeast (Trajanic), o: Filling of the channel running from the north to south (Flavian), p: Leveled layer of the original top-soil. First level of the street (Flavian) and first and second levels of the floor in portico (Flavian and Trajanic).

ing hospital's operation, the surface was cut by the ditch and the stone channel running from the north to south was built in it (*Archeologia* 38: 157). The street's surface was then made of stone slabs covering the channel and a layer of loess with traces of fire and small quantities of fragments of bricks (*Archeologia* 38: 157). The street existed there probably before the Trajan's period as well. Both the walking layer of the virgin soil, pieces of mortar and a simple channel, dug 0.4 m deep and running from north to south, support this hypothesis (*Archeologia* 38: 157). A similar street, running from north to south, in the east side of the *retentura* of the fortress was found. It was 4.2 m wide and probably unpaved (*Archeologia* 56: 149).

The street to the south of the *valetudinarium*, running from west to east, initially was 4 m wide including 1.2 m wide paved sidewalk on the north side. After the hospital's construction the whole street was paved, however, it then became slightly narrower and had 3.5 m (*Archeologia* 47: 63).

CONCLUSION

Aforementioned data allow us to say that the main streets of Novae during Trajan's reign were flanked

by porticoes, however, mostly from one side only (with the exception of the southern part of the *via praetoria* and maybe the *via principalis* which served as the main street of the fortress). Porticoes accompanied also the smaller streets to the west and east of *principia* because of the importance of the central area of the fortress and buildings constructed there. The *via sagularis* ran in the distance of 8–10 meters from the walls of the fortress and was some 4 m wide. The smaller streets running both from north to south and west to east divided the three main parts of the fortress into smaller plots. All the more important streets were paved in the period under discussion and the earlier grid plan was generally respected. The most important changes may have occurred in the *retentura*, however, the state of research of that area does not allow us to say more about it. This, as well as moving of the *via sagularis* at the beginning of the 2nd century and other construction changes, seems to allow us to state that the streets of Novae were constructed as part of the wider building activities which resulted in rebuilding of the old earth-and-timber camp into the new one – made of stones. The same as in the case of many other fortifications lying along the Lower Danube on the eve of Trajan's Dacian Wars.

ABBREVIATIONS

Archeologia	<i>Archeologia: rocznik Instytutu Archeologii i Etnologii Polskiej Akademii Nauk</i> , Warszawa.
Izvestia	<i>Izvestia na arheologičeski Institut</i> , Sofia.

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