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Surveying of Belgrade: Technical Background of Emilijan Josimović Plan from 1867**

ABSTRACT: Plan for the reconstruction of Belgrade, formulated by Emilijan Josimović in 1867 is one of the most researched urban plans in Serbia. Anyhow, one aspect of the plan, the survey of Belgrade, has remained outside the focus of scholars. This paper analyzes and presents the surveying of Belgrade, made by Josimović, as part of the activities on making the well-known plan of the city. The research question we have set out is: how, when, with which instruments, means, and the material did Josimović produce a geodetic map of the city? Archival materials, various maps, literary sources, as well as two Josimović's publications from 1862 and 1867, were used in the description and analysis of the production of the first accurate geodetic map of Belgrade urban tissue from the mid-19th century.

KEYWORDS: history of surveying, geodetic map, plane table, Emilijan Josimović, urban plan, Belgrade 1867.

INTRODUCTION

This paper analyzes and presents surveying of Belgrade, made by Emilijan Josimović (1823–1897) in the 1860s, as part of the activities on making the well-known urban plan of the city, published in 1867. A Serb from the Austro-Hungarian Empire, born in Old Moldova (present-day Romania), educated in Hungary and Austria, resident of Serbia since 1845, Josimović was a civil engineer, professor of mathematics, geodesy, architecture and road construction at Lyceum, later at the Great School, and Military Academy, and a member of several eminent scientific societies, as well as a honorary member in the Serbian Royal Academy. He spent his

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lifetime teaching students for both civil and military engineering and geodetic services, which was based on the Austrian and Hungarian models (ЂУРИЋ-ЗАМОЛО 1976). In the period from 1864 to 1867, Josimović drafted a proposal for the regulation of the Belgrade's Town within the Moat (*Varoš u šancu*). Today, it is the area of the historic core of Belgrade.

At the time Josimović made the plan, Belgrade was the capital of the Principality of Serbia, which was gradually liberated from the centuries-old Ottoman rule. Josimović's plan was the basis for the reconstruction of the city which lasted until the late 1930s (VUKSANOVIĆ-MACURA 2018). After having made the plan in 1867, Josimović no longer took part in larger activities related to the reconstruction of Belgrade. However, he took part in other important state affairs that required the person of his knowledge and experience. In 1878, after he had retired, he left Belgrade and lived in a village near town of Lazarevac. In the late 1880s he moved to Sokobanja where he died in 1897 (ЂУРИЋ-ЗАМОЛО 1976).

An interest for Josimović's plan for the regulation of the Belgrade was re-initiated by the architect Branko Maksimović (1938/1962, 1957, 1967), who presented and elaborated a series of data on his work and plan. Josimović's work, from various aspects and in varying degrees, was dealt by many other authors (ШКАЛАМЕРА 1967; МАСУРА 1968; 1983; ЈАНИЋ 1975; ЂУРИЋ-ЗАМОЛО 1976; ПЕРОВИЋ 1985; МЕДАКОВИЋ 1997; БОЈОВИЋ 1997; 2018; КРАСОЈЕВИЋ 2004; ВОГУНОВИЋ 2005; МАКУЉЕВИЋ 2015; ЈЕВТИЋ-НОВАКОВИЋ, ЂАЛОВИЋ, МИЋОВИЋ 2015; ДИМИТРИЈЕВИЋ-МАРКОВИЋ 2017; ЋОРОВИЋ 2018; ЈЕВТИЋ-НОВАКОВИЋ, ДИВАЦ 2018; ВУКСАНОВИЋ-МАСУРА 2018). Based on this, certainly a partial list of references, it could be said that Josimović's plan is one of the most fundamentally studied urban plans in Serbia.

In spite of the multiple research work on Josimović's plan, one area, geometric survey of the Belgrade, has remained outside the focus of scholars. Josimović seems to have been forgotten in the works of geodetic researchers too. In the article "Library Funds and Old and Rare Books from the Field of Geodesy", Okanović (2014) quotes, as the oldest book from the geodetic profession in the Serbian language from 1868, *Height Measurement with a Special View to Leveling*, by Mihailo Petković, the book that was created six years after Josimović's *Practical Geometry*. Some texts dealing with the history of geodesy in Serbia contain only general and well-known information about the work that Josimović did on the plan for the Belgrade (САВИЋ 1987; ЧКРЕБИЋ 1989; МИЛАДИНОВИЋ, ДУГОЊИЋ 2012). Filling this gap in knowledge of the process of making one of the most important plans in the history of urban planning in Serbia as well as the knowledge about the activity of one of the most important Serbian engineers, are the reasons for the creation of this article.

Josimović made the plan of Belgrade in two steps. The first step was to make a map of the existing state of the city, in order to know what needs to be reconstructed. The second step was to formulate and draft proposals for reconstruction. The initial step required detailed and precise survey of the existing city structures. Therefore, the research question we have set out in the paper is: how, when, with which instruments, means and material did Josimović produce a geodetic map of the Belgrade's Town within the Moat, which he later used as a basis for the formulation of a regulatory plan for reconstruction?

In the research, as primary sources, we used Emilijan Josimović's publications, two of which were crucial. The first, 1867 publication, with the title *Explanation of the Proposal for Regulation of the Part of the Belgrade that lies in the Moat with a Single Lithograph Plan in*

the Scale 1:3000 (further *Objasnenje*) (Јосимовић 1867) was often used to analyze Josimović's work. The second, entitled *Practical Geometry* and published in 1862, is very rarely used in the analysis of Josimović's work on the plan for the Belgrade (Јосимовић 1862). *Objasnenje* is a book in which the concept and technical report on the proposal for regulation and reconstruction of the Belgrade were given. The book of 51 pages is divided into five chapters with attached the plan in the scale of 1:3,000, on which the drawings of the existing situation and the proposed regulation of the Belgrade were overlapped (Fig. 1). *Practical Geometry* was a

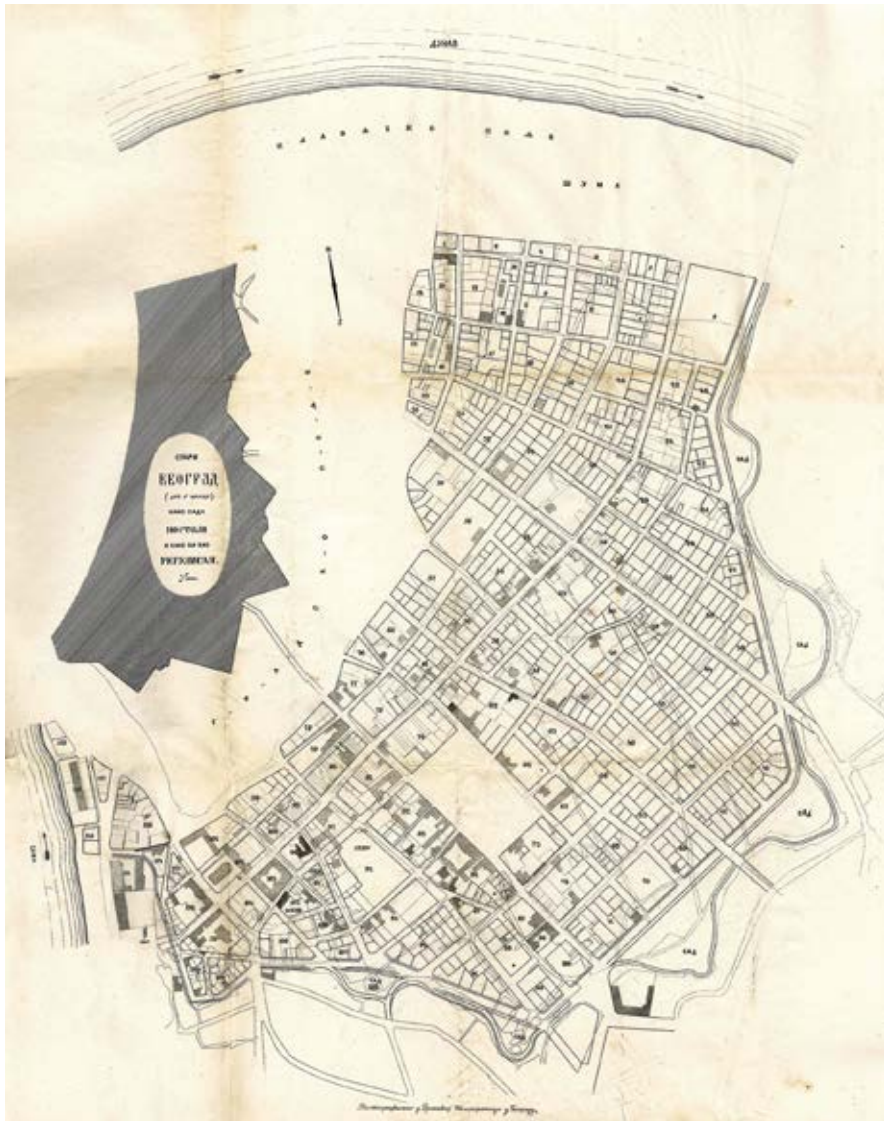


Fig. 1. Regulation Plan for Belgrade, 1867, by Emilijan Josimović (University Library “Svetozar Marković”, Belgrade)

textbook intended for Lyceum students (ЈЕВТИЋ-НОВАКОВИЋ, ДИВАЦ 2018). The term practical geometry in the 19th century marked the discipline whose central object was land survey (HUNAUS 1864), and it is outdated today and replaced by the term surveying. Josimović's textbook has a total of 116 pages and is divided into two chapters. The first one is "Surveying", in which land survey of smaller surface areas is described on 60 pages. By today's words, this part of the textbook deals with the land survey for the needs of making geodetic, topographic or cadastral maps. This chapter also includes the "most common measurement devices", different theoretical explanations, as well as tasks for surveying flat and hilly ground, in an accessible area and inaccessible terrain, due to rivers, marshland, ravines and the like. The second chapter of the textbook "Vertical Measurement and Leveling" on 48 pages is dedicated to survey for the needs of making a leveling plan, i.e. the future profile of the streets.

PROFESSIONAL AND SOCIAL CONTEXT OF JOSIMOVIĆ'S WORK

Historical events directly influenced the development of geodetic practice in the Principality of Serbia in the 19th century. The regulations made by the Principality were neither numerous nor comprehensive but they were an attempt to independently regulate relations in many domains of social life, even in the organization of settlements (КРСТИЋ 2016). Development of geodetic practice must also be followed through the development of Serbian cartography. Serbian cartography of the 19th century began with a map from 1805, when Sava Popović Tekelija printed the first map of Serbian countries, as a form of helping the Serbian uprising (КРАСОЈЕВИЋ 2004). In the second half of the 19th century, with the development of geographical sciences at the Great and Artillery School, cartography was systematically studied.

As the beginning of modern geodetic practice in Serbia geodesists take 1837, citing data relating the Ascension Day Assembly held in Kragujevac, when Prince Miloš Obrenović raised "the issue of land survey and classification" (МИЛАДИНОВИЋ, ДУГОЊИЋ 2012: 9), in relation to a fairly determined tax amount. The same year is related to urban planning legislation and the Decree of Prince Miloš of Žabari on March 8, 1837, known as the *Decree on Laying out Orthogonal Grid in Villages* (МАКСИМОВИЋ 1962; КРСТИЋ 2016). Rational organization of the rural area, which the Prince tried to apply primarily by the example of the Austro-Hungarian villages (Којић 1961) led to resistance and disapproval of the population, as well as to the appropriate penal policy of the authorities. On the other hand, "Prince Miloš and his followers realized that Serbia could become a European state only if it built cities and established state and city institutions in them" (КРСТИЋ 2016: 16). Along with laying out orthogonal grids in villages, many places that are still parts of Serbia's urban network were formed.

Urban planning in Serbia can be linked with the first regulatory interventions from 1827, conducted in Požarevac, which was one of the places of residence of Prince Miloš. This was followed by the other interventions: founding of Poreč in 1831, the regulation of the market in Čačak and the establishment of Požega, both from 1832, the regulation of the Kruševac bazaar and the founding of Lešnica in 1836, Trstenik in 1837, and Brusnica in 1839 (MACURA 1983). In the second half of the 19th century, a new chapter in the reconstruction of towns in Serbia was opened and surveying of urban space gained in importance as an indispensable basis for the preparation of regulatory plans (МАКСИМОВИЋ 1962). Some of the most important regulatory

plans, which were made after the departure of the Ottoman garrisons and the Muslim population from Serbia, were the 1868 Plan of Novi Negotin by Dragutin Milutinović, then the plans of Niš, from 1878, by Feliks Daljković and Emanuel Vinter, as well as the plans of Aleksinac in 1878–1884, Zaječar and Žabari in 1887, Kuršumljia 1888, Užice 1889, Surdulica 1893, Kruševac 1899, and Kraljevo in 1901 (MACURA 1983).

The initial surveying of Belgrade, before it became the capital of Serbia, was carried out in 1839 in the part of the city along the Sava River named Savamala. It was made by Anton Šulc, but it was rather superficial, so that the new survey was entrusted to Atanasije Nikolić. From his letter sent to the Ministry of the Internal Affairs, we find out that the survey is based on “geometric truth” and although the plan has not been preserved, it is assumed that this was the first large-scale plan in Belgrade, because Nikolić was asked to survey the land, assess structures and check ownership (КРАСОЈЕВИЋ 2004). By 1867, when it completely went to the Serbian administration, Belgrade was divided into three urban, social and administrative units. On the rock above the confluence of the Sava River into the Danube, the Belgrade fortress, which was the seat of the Ottoman garrison, rose. Around the Fortress, a Muslim-Christian civic city was spread, surrounded by a moat and palisades, which was run by both the Ottoman and Serbian authorities. The third ring, on the outside of the moat, was a new suburb that the Serbian authorities began to form about the middle of the 19th century.

SURVEYING OF BELGRADE

What was Belgrade’s Town within the Moat that Josimović was supposed to survey, like? Historian Vidosava Nikolić conducted an analysis of the state of Belgrade’s physical structures based on lists and property valuations of Muslim estates in 1862 and 1863. Nikolić says that the value of houses, shops and other buildings was very low because they were ruined and prone to decline due to age and poor material, which was related to more than 90% of the building stock. She also points out that many parts of the narrow streets were underwater, especially those near the Danube. Her conclusion is that the list of Muslim property speaks of the general economic neglect and decay of the Turkish part of the city (НИКОЛИЋ 1962–1963). Although according to the terms of the Kanlidja Protocol of 1862, the political-ownership position of Belgrade for the Serbian side was in many ways well-formulated, however, the survey of the Town within the Moat had to be difficult because it was still partly owned by the Ottomans. Namely, negotiations about the purchase of Muslim property, “Muslim Mahalla”, led by the President of the Ministerial Council, Ilija Garašanin, from the Serbian side, were completed only in 1865 (МИЛJKOVIĆ-KATIĆ 2018). Ninety hectares of the city land were a built structures, infrastructure and streets. In the Muslim part, near the Danube, it was largely ruined, while on the Serbian side, toward the Sava River, it was in relatively good condition. Within the city there were 688 plots with 1,449 residential buildings and 951 shops (ПЕРУНИЧИЋ 1967), of which only 137 buildings made of hard materials (ЈОСИМОВИЋ 1867) including the church, Jewish places of worship, mosques and half-destroyed so called Eugene of Savoy’s palace. The city consisted of 230 curved and irregular streets (ВУКСАНОВИЋ-МАЦУРА 2018), of which 40 were dead ends (ЈОСИМОВИЋ 1867). The street network formed 119 blocks. Such was the state of the urban tissue that needed to be surveyed (Fig. 2).

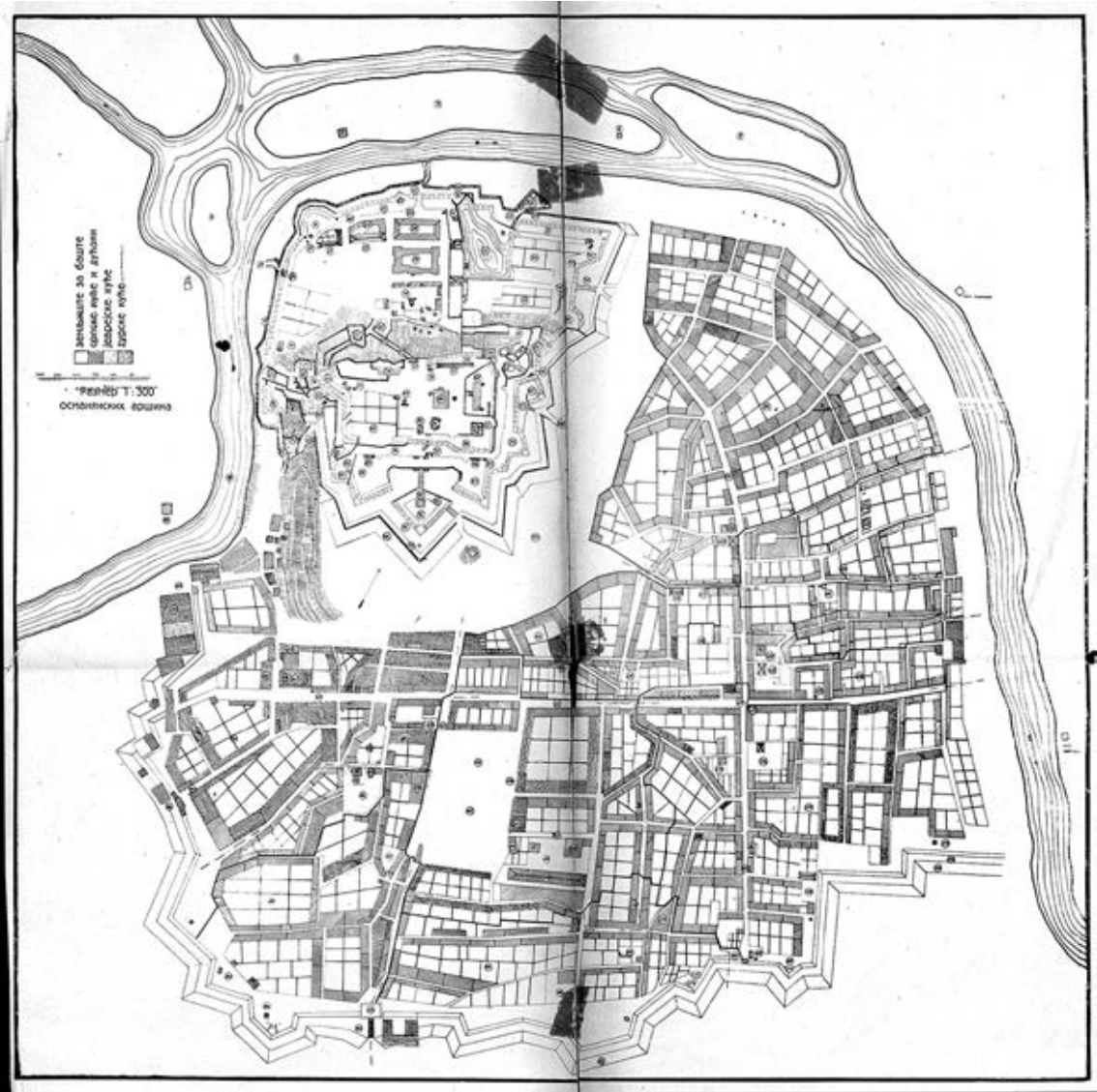


Fig. 2. Turkish plan of Belgrade from 1863, redrawn in 1937 by G. Elezović and P. Popović
(Београдске општинске новине)

What instruments could Josimović use during his surveying of Belgrade? Engineer Jovan Obradović, in his text from 1927, described Josimović's work saying that "plan was made on the basis of translation by a plane table" (according to КРАСОЈЕВИЋ 2004: 542–543). Surveyors used the plain table in field survey and drawing maps according to the graphical method. Graphical method is based on the translation of selected earth points into paper, with the formation of a map in the desired scale. This method has no calculations, but it means drawing

a plan directly in the field, of what the surveyor sees. In *Practical Geometry*, Josimović presented the complete tools for surveying and drawing a map. Plane table was in use for a long time, from the 17th to the second half of the 20th century, while in the 19th century it was a very popular instrument (Fig. 3). Austrian and Hungarian cadastral maps of that time were made using a plane table (Живковић 1987) and Josimović refers to this practice in *Practical Geometry*.

Plane table consists of a tripod, a leveling head, a “cross” and a board (Јосимовић 1862: 4–5). The leveling head is a part of the tripod and it is movable, which allows the “cross” and the board, which are placed on it, to be brought into a horizontal position. It is only in this position that a plan can be drawn up. The board of a plane table, usually dimension 62.0 x 46.5 cm, was made of linden plates and the paper on which the plan was drawn, was attached to it. As a drawing tool, Josimović used the ruler on which either a telescopic alidade (another term was *kipregel*) or a simpler type called plain or simple alidade, was placed. The plane table and the alidade were equipped with a spirit level, a plumb bob and a trough compass that were used



Fig. 3. Plane table with telescopic alidade or *kipregel* (Military Geographical Institute, Belgrade; photo: Z. Vuksanović-Macura)

for various adjustments. Without these tools, plane table could not be used as an instrument for measuring and drawing a plan (ЂОРЂЕВИЋ 1937).

Where did Josimović begin to survey the city, since he needed a fixed and reliable surveying point from which he would start? The answer to this is found in the *Plan of the Demarcation of the Fortress and Muslim Mahalla according to the Kanlidja Protocol of 1862* that referred to Kalemegdan surroundings and which was made at the beginning of 1863 (ШКАЛАМЕРА 1967). The adoption of the Kanlidja Protocol in 1862, was followed by the demarcation of the Fortress esplanade, Kalemegdan, from the Town within the Moat. For the needs of the international commission that worked on the demarcation, the aforementioned plan was made in the scale of 1:2,000, which we presume that must have been known to Josimović. It is important that the geodetic elements, necessary for the geodetic setting of the border, were included in this plan, which Josimović could use as the starting point for his survey of the city that began a year later, in 1864. According to the writings of Jovan Obradović, documentation of the 1863 survey was used for the 1864 Josimović's survey (КРАСОЈЕВИЋ 2004). On the basis of this, we can assume that Josimović took over the field data from this plan and survey, particularly having in mind that they were internationally verified. Once established, the starting point gave the possibility to move to further survey of the Belgrade.

A plan that is drafted on a plane table, depending on the scale and size of the area, can be drawn on one or more sheets of paper. The territory of the Belgrade that Josimović surveyed was around 90 hectares and covered the area of approximately 1,800 x 1,600 meters. In a drawing of a scale of 1:1,000, this area could be entered into a rectangle measuring approximately 180 cm per Y axis and about 160 cm per X axis. The paper surface of the plan could be 28,800 cm². The usual dimension of the board of plane table, that is, the surface on which the entire plan was drawn, was, as we have said 62.0 x 46.5 cm, that is, 2,883 cm², which was the size of one section. With these assumptions, Josimović needed 10 or 11 sheets of paper or canvas for drafting the city plan, it depends on what the sections were drawn on.

Problem with the material on which sections will be plotted during the survey always occupied the attention of surveyors, when graphical method was concerned. Namely, in this method there are no calculations and the accuracy of the plan depends on the physical inertia of the material. Regarding papers, changes do not occur when changing temperatures but they happen when changing humidity, where the deformations along the X axis are less than along the Y axis (ЖИВКОВИЋ 1987). Josip Ђorđević (1937) describes the procedure of increasing the inertia of paper by pasting it on the board of the plane table or by pasting it on canvas first and then together with it, fixing it on the table board. These sections, drawn in the field, had to be preserved undamaged and undeformed because later, in the office, on the basis of them, the overall plan of the area was drawn. In *Practical Geometry*, Josimović (1862: 50) says that the table is coated with a "clean strong paper". He most likely used paper for drawing the sections of the plan during the field survey, which he also used later, for drafting the final geodetic map.

When the field survey by the plane table was completed, at the same time 10 or 11 sections of the city geodetic map, on which the existing state was drafted, were completed. Josimović continued further work on the finalization of the geodetic map in the office that was in the house in Block 46. Today it is in the area of the intersection of the streets Gospodar Jevremova and Kneginje Ljubice. There, the content of sections drawn in the field was transferred to new,

clean paper that would become the geodetic map of the Town within the Moat, in the scale of 1:1,000. On such a geodetic map, on which the existing situation was shown by a thinner line, Josimović could make a proposal for the regulation of the entire Town within the Moat (Fig. 4). It is possible that some of these plans were made in color (КРАСОЈЕВИЋ 2004). A plan-attachment for *Objasnenje*, in the scale of 1:3,000, was also made in the office (ЈОСИМОВИЋ 1867).

Furthermore, on the cover of *Objasnenje*, it was written that the book was printed in the State Printing Press and that the text was accompanied “by a lithograph plan in the scale of 1:3,000”. In the title on the plan it was written: “Lithographed in the State Stonecutter’s in Belgrade”. The State Printing Company was founded in 1831 in Belgrade (ПИЈУКОВИЋ 1957).

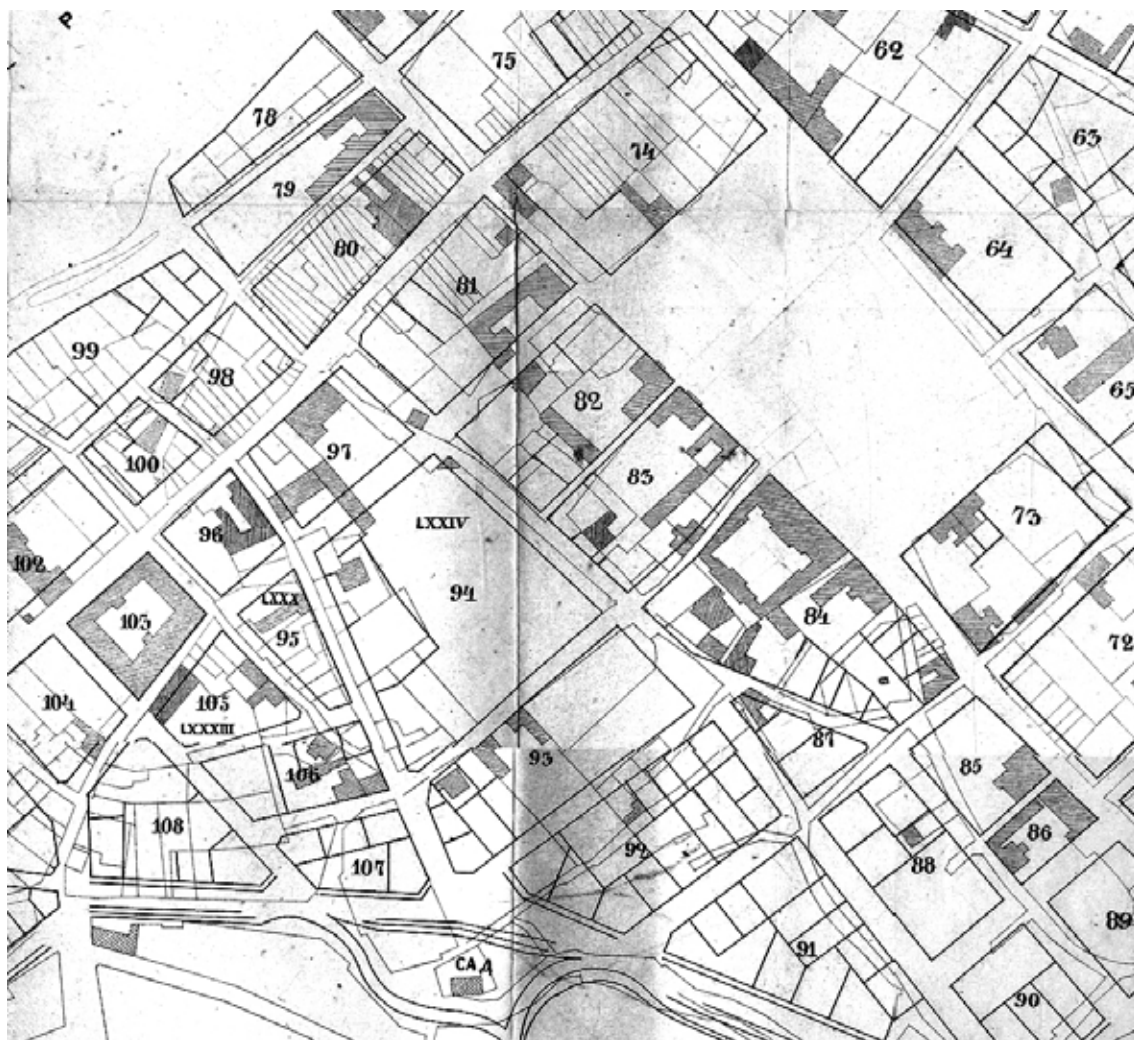


Fig. 4. Overlapped existing city tissue and new blocks, detail of Regulation Plan for Belgrade, 1867.
(Source: University Library “Svetozar Marković”, Belgrade)

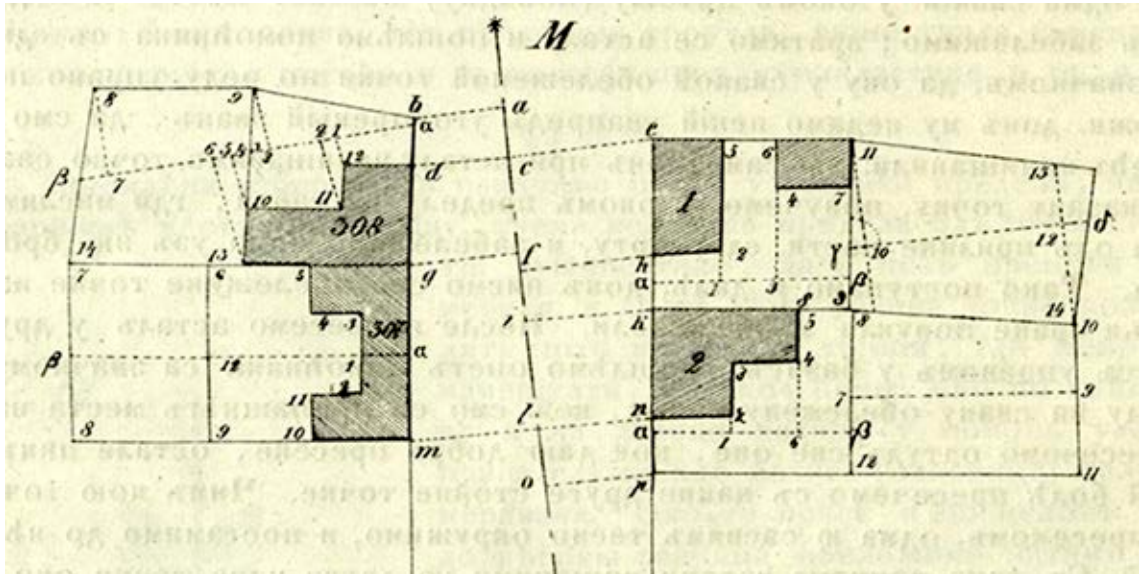


Fig. 5. Instructions for surveying and drawing houses and plots (JOSIMOVIĆ 1862: 52; Matica Srpska Digital Library)

At the beginning of work, in 1832, the Printing Press had “two iron medium-sized manual presses of a completely old construction” (НИКИЋ 1956: 401), a letter-foundry and a bookbinder and in 1851 the first printing press was purchased (ПИЈУКОВИЋ 1957). Lithography arrived in the State Printing Press a few years earlier, in 1848, and sheets were most likely drawn on manual presses. That drive was installed for fine printing, which was related to lithography, invented in 1798. Before Josimović’s plan, in 1863, the above mentioned plan for the demarcation of civilian city and the Belgrade Fortress esplanade, was printed in two sections, each dimension 60.5 x 83.3 cm (ШКАЛАМЕРА 1967). Josimović’s geodetic map, which was made in the scale of 1:1,000, had to be drawn and printed on several sheets. If the size of a lithographic sheet was similar to those of 1863, then one big plan required six sheets, that is six lithographic stones. None of the original lithographic plans has been preserved.

The scale 1:1,000 enabled Josimović a high level of mathematical accuracy in calculating land areas at two decimal places (Fig. 5). For example, in Block 20 for a church, 3,023.68 m² of land is planned, for a market at the Dorćol intersection 7,796.88 m² etc. It is wrong to believe that this meticulous approach came from his work-obsessed spirit. It was completely different: none of the interested parties, neither individuals nor the state were allowed to be harmed (JANIĆ 1975). When he rounded numbers for some surfaces, he explicitly emphasized it, as in the case of parks along the circular boulevard (ЈОСИМОВИЋ 1867). The obligation to make the plan as accurate as possible stood as the supreme requirement before Josimović all three years of his work. Dragana Ćorović (2018) brings an assessment of Belgrade doctor Milan Jovanović Morski from 1867 about Josimović’s work, who said that Josimović solved the task of reconciling interests with “rare smartness”. Furthermore, Josimović made four books with detailed data



Fig. 6. New divisions of plots after Josimović's plan in Dorćol, detail of photo 1876–1878 (Belgrade City Museum, Ur_3752; photo: Ivan V. Groman)

for each plot. The books were manual used for financial calculations: “Amount of surface for payment or compensation is detailed in these four books with the calculated all plots in the present state and after regulation” (ЈОСИМОВИЋ 1867: 30). Thus, it can be said that the geodetic map of the existing situation and the regulation plan based on it was not only an urban document; it also was a financial and technical plan for the reconstruction of Town within the Moat (Fig. 6).

CONCLUSION

In the second half of 19th century the method of geodetic work in Serbia and Belgrade was the same as in Austro-Hungary or other parts of Europe. Namely, since the mid-19th century, Serbia has begun to develop civilian and military personnel capacities for the modern land survey both in open area and in villages, towns and cities. Besides bringing engineers from abroad, future engineers were educated at Lyceum, to become skilled in geodetic jobs and in the use of geodetic equipment of that time. The main geodetic instrument, used by Josimović, too, was the plane table with alidade that was used by surveyors throughout central Europe. The geodetic map of the existing state of the Belgrade Town within the Moat served Josimović to make a proposal for the regulation of that area. Through the technical elements of his work, Josimović demonstrated modernity and orientation towards progress.

Josimović was not the only one involved in making a regulatory plan for the reconstruction of the Belgrade. There were various other persons who saw the future of the city in the same way as he did – as part of the European understanding of urbanity. Prince Mihailo was at the head,

then there were the Ministers of Construction, Monden and Blaznavac, the state apparatus, the Belgrade administration, various commissions and citizenship (ВУКСАНОВИЋ-МАЦУРА 2018). The successful reconstruction of the Belgrade's Town within the Moat was certainly a reflection of the collective feeling and the desire of the state elite, Belgrade and its citizens, to modernize and make progress. Success could not have been achieved if Josimović had not built his engineering geodetic knowledge and the desire to improve urban planning techniques in Serbia, into an assigned task.

Drafting a regulatory plan, which was the requirement for the reconstruction of the city, was based on the geodetic map of the existing situation, as the first step in urban work. Josimović's geodetic map of the Belgrade was the most comprehensive and highest quality product of Serbian geodetic science and practice of the 19th century. Before him, from the middle of this century, there were several plans of different quality and purpose, including detailed plans of Franc Janke made in 1840–1842, Kenig's topographic plan from 1854, as well as the mentioned plan of demarcation of the Fortress and the Town within the Moat from 1863 (ШКАЛАМЕРА 1967; ВУКСАНОВИЋ-МАЦУРА, БАНКОВИЋ 2017). After Josimović's plan, Belgrade kept on surveying and publishing detailed and general geodetic and topographic plans. The most famous among them was the plan of Stevan Zarić from 1878, then the unfinished plans of the Halači brothers from 1884 and General Regulatory plan of Belgrade within the administrative boundaries by the engineer Jovan Smederevac from 1890 (НЕДИЋ 1976; ВУКСАНОВИЋ-МАЦУРА 2014). Unlike plans made until 1867, which had many shortcomings (the exception were the plans of Franc Janke), later plans were geodetically correct, that is, precise and reliable. It was one of the merits of Josimović's work after which all subsequent plans were expected to have the same geodetic quality.

Certainly, the greatest merit of Josimović's work is his success to offer the Serbian authorities and Belgrade a plan that will open the option for the reconstruction of the city on a financially clear basis. In 1865, the state bought Muslim Mahalla in the Town within the Moat and Josimović was able to propose a new land division, so as to minimize damage to the boundaries of the plot, thereby reducing the cost of compensation for harmed property. Thus, he enabled the state to recover the capital invested and to make profits for further reconstruction. In the new land division, the geodetic moment was crucial: the land was divided so that it could provide economic profit both to potential buyers and to the city cashier. This mechanism proved sustainable over seven decades of reconstruction of the city and led to the results that are recognized today in the area of the city center.

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ГЕОДЕТСКО СНИМАЊЕ БЕОГРАДА:
ТЕХНИЧКИ АСПЕКТИ ИЗРАДЕ ПЛАНА ЕМИЛИЈАНА ЈОСИМОВИЋА ИЗ 1867.

Резиме

План реконструкције и регулације Београда који је 1867. године израдио Емилијан Јосимовић, један је од најчешће изучаваних урбанистичких планова градова у Србији. Упркос томе, технички аспект израде плана и геоматарско премеравање београдске Вароши у шанцу остали су изван фокуса

истраживача. У чланку је анализирано и приказано геодетско снимање које је Јосимовић спровео као део активности на изради познатог плана Београда. Стога је истраживачко питање које смо поставили било: како, када, којим инструментима, средствима и материјалом је Јосимовић израдио геодетски план града. Архивска грађа, урбанистички и геодетски планови, писани извори и две Јосимовићеве публикације, из 1862. и 1867. године, коришћени су за опис и анализу израде првог прецизног геодетског плана београдског градског ткива средине XIX века.

Кључне речи: историја геодетског снимања, геодетски план, геодетски сто, Емилијан Јосимовић, урбанистички план, Београд 1867.

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