

Maciej Piekarski*

Topography of the 18th-century Rzeszów and its relics in the contemporary architectural and urban space of the city

Introduction

The increased interest in regional history is one of the current effects of civilizational development. Popularization of tourism resulting from the increase in the level of education and wealth of the society is an important stimulator. The self-promotion undertaken by local authorities in order to compete for permanent residents constitutes an extra motivation. The progress in the field of digital technologies, which facilitates the dissemination of archives, including by means of tools presenting their content in an accessible and suggestive way, is one more catalyst for this trend. Unfortunately, digital tools introduce a distance between the place where the content is received and the places pictured, which makes difficult to assess the message. Undoubtedly, confrontation of historical content directly in the place of its creation has the greatest value.

Historical development of Rzeszów

Rzeszów is perceived as a new, dynamically developing city. Meanwhile, the documented history of the city dates back to the 14th century. The views on the existence of an earlier settlement in the place where Kazimierz Wielki [Casimir the Great] founded the city in 1354 are contradictory [1]–[4]. Also, the history of the early spatial development of Rzeszów is known only in outline [1]–[6], mainly on the basis of the results of archaeological research, because only one architectural object of medieval origin has survived – the parish church of St. Wojciech and Stanisław. In the early period of development, Rzeszów covered the area of the present Market Square with

its adjacent areas, the parish church and the areas between them. The convenient location of the city resulted from the east-west communication route running through it and the backwaters of the Wisłok River and the Mikośka Stream.

The rapid population growth prompted one of the owners of Rzeszów, Mikołaj Rzeszowski, to locate, in the 16th century, directly to the north-east of then Rzeszów, the so-called Nowe Miasto, a separate settlement inhabited mostly by the Jewish community. The Nowe Miasto occupied the space of the present Wolności Square and the buildings surrounding it. The location of a fortified manor house in the southern direction, occupying a different hill among the backwaters of Wisłok and Mikośka, was the impulse for further spatial development of Rzeszów. The manor house, and later the castle, was connected to the city by a road constituting the archetype of the main compositional axis of historic Rzeszów, which is today's 3 Maja Street. The area around this road was building up gradually. In the years 1624–1629, Mikołaj Spytek Ligęza built a Bernardine complex located north-west of the borders of medieval Rzeszów, which initiated the spatial development of the city in that direction [2]–[5].

From 1638 until the 1st half of the 19th century, Rzeszów was owned by the Lubomirski family, who expanded the city, founding excellent institutions and buildings. They brought the Piarists, who in 1658 founded the College in the city – an educational institution that has been continuously functioning to this day in changing forms. For the needs of the Piarist Order, at the turn of the 17th and 18th centuries they rebuilt the earlier building housing the church, monastery and college, giving it an architectural form close to the current one. The designer was Tylman from Gameren, who also designed the so-called summer palace. In the vicinity of the castle and the summer palace, gardens were established and a manor farm, stables and a kennel were built, as well as another church and monastery – of the Reformati.

* ORCID: 0000-0002-9788-1099. Faculty of Civil and Environmental Engineering and Architecture, Rzeszow University of Technology, Poland, e-mail: mgpiekar@prz.edu.pl

The residence and the town were surrounded from the west by a set of ponds forming with the backwaters of Wisłok flowing around them from the east [2]–[5], a specific system of fortifications.

The general layout of 18th-century Rzeszów is known from the so-called Wiedemann plan. The drawing, the original of which is kept in the District Museum in Rzeszów, is an icon of the city. On its basis, in 2002, a mockup presented in the Museum of the History of the City of Rzeszów was made, and in 2004, a mural was placed on the wall of one of the tenement houses. In 2022, an excursion route was opened in the basement under the Rzeszów Market Square, in which, after renovation and retrofitting, a multimedia story about the history of the city is presented. The narrative is woven around the theme of the “city on water”, inspired by the Wiedemann’s plan. However, the visualizations presented there are a free vision of their creator, unsupported by knowledge about the actual spatial configuration of the Rzeszów backwaters.

18th-century Rzeszów in the legacy of Karol Henryk Wiedemann

Karol Henryk Wiedemann was a German military engineer and architect who came to Rzeszów in 1728 where he designed and supervised the construction and modernization of all major buildings in the city for 40 years as the court architect of the Lubomirski family. He is also credited with designing the spatial arrangement around the castle and the summer palace. Wiedemann, apart from his legacy of strictly engineering works, went down in history as a talented graphic artist, leaving behind two views of Rzeszów. The first one is in the form of a triptych (Fig. 1), the middle part of which shows the city in a perspective view from the east, and the left and right parts – the summer palace with a garden layout and the castle, respectively. The triptych was probably made in the 1730s. The second view is the previously mentioned Wiedemann plan from 1762. It presents the entire city in a perspective view from the west (Fig. 2).

Previous researchers of the history of Rzeszów are full of appreciation for Wiedemann’s precision and scrupulousness expressed in the meticulous mapping of the city. Wiedemann made his drawings in the times before the first balloon flight and the birth of photography. He relied only on imagination constructing a bird’s-eye view of the city, most likely not using geodetic measurements. The number of architectural objects in the view of Rzeszów from 1762 proves that he paid attention to details. However, Wiedemann’s plan is burdened with errors leading to the deformation of the image of the city. It seems that Wiedemann began the construction of the view of Rzeszów by determining the axis of Pijarska Street (now 3 Maja Street), drawing it on the plane of the drawing as a horizontal straight line, while the street, which has remained unchanged to this day, is about halfway bent at an angle of about 17°. Another mistake of Wiedemann was the incorrect estimation of the length of the Piarist complex in relation to the length of the entire Pijarska Street (Fig. 3a). Although the school wing was shorter in his times than it is today, the length ratio measured on the view from 1762 is greater than the ratio calculated on the basis of measurements from the current map, taking into account the extension of the school wing made in 1835 (Fig. 3b). As a result of these mistakes, the image of the western part of the city, including the ponds and the castle farm buildings, was significantly deformed. The gardens located at the back of the Piarist complex occupied on the drawing a larger area than they actually did, and due to the lack of space for a proper mapping of the later Różana Street (not preserved to this day) and the buildings located along it, its course was presented inconsistently with the facts. One can discern Wiedemann’s conscientiousness, manifested in an internal order to count and show all the existing buildings in the city, but other details of the drawings of Rzeszów undermine the myth of his extraordinary accuracy or correct it with the conclusion that it was adequate to the standards of the epoch.

The central part of the triptych shows a view of Rzeszów, on which all significant buildings of the city are



Fig. 1. Rzeszów triptych made by K.H. Wiedemann, probably in the 1730s
(source: District Museum in Rzeszów, sign. MRH 2558)

Il. 1. Tryptyk rzeszowski wykonany przez K.H. Wiedemanna przypuszczalnie w latach 30. XVIII w.
(źródło: Muzeum Okręgowe w Rzeszowie, sygn. MRH 2558)



Fig. 2. Perspective view of Rzeszów made by K.H. Wiedemann in 1762
(source: District Museum in Rzeszów, sign. MRH 2557)

Il. 2. Widok perspektywiczny Rzeszowa wykonany przez K.H. Wiedemanna w roku 1762
(źródło: Muzeum Okręgowe w Rzeszowie, sygn. MRH 2557)

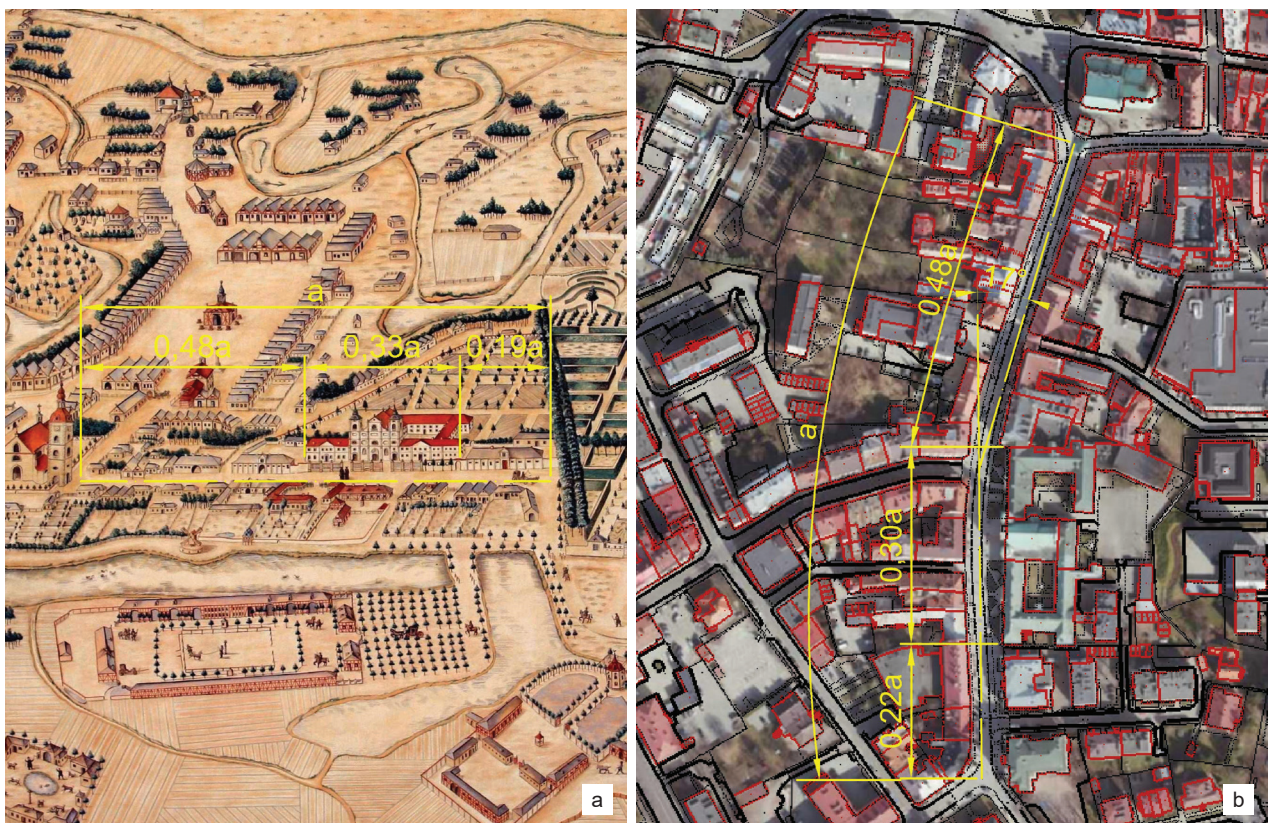


Fig. 3. Spatial characteristics of Pijarska / 3 Maja Street:
a) on Wiedemann's plan, b) on the current map (elaborated by M. Piekarski)

Il. 3. Charakterystyka przestrzenna ul. Pijarskiej / 3 Maja:
a) na planie Wiedemanna, b) na aktualnej mapie (oprac. M. Piekarski)

visualized. Their shapes differ from contemporary ones due to later modernizations, but the location of the reformats complex, as well as the number of windows in the buildings, suggest that Wiedemann considered his work as only a scheme, focusing on “counting” the objects, and not on exact reproduction of their shapes and location. The same is true of the view of the city in 1762. The number of axes in the monastery part of the Piarist complex, unchanged to this day, calculated incorrectly (on Wiedemann’s plan 10, in fact 11) presented on it, gave rise to divergent theories about the extent of the expansion of the school wing in 1835 [4], [7]–[10].

It is hard to believe that the errors were Wiedemann’s intention. It can even be assumed that he himself noticed them while working. The abandonment of the correction could have resulted from the state of advancement of the work, which measures 120×180 cm, so it was created over a longer period of time, as well as the purpose for which it was made. The view of the city was supposed to “please the eye” of Duchess Joanna Lubomirska, who was the owner of Rzeszów at that time. Probably, her spatial imagination was inferior to that of Wiedemann, and moreover, the Duchess, spending time in the castle chambers and gardens, did not know the topography of the city well. Such a view of Rzeszów satisfied her ambitions.

Objectives and methods of research work

Drawing attention to the obvious, though not commented by anyone, inaccuracies in the mapping of the city structure on Wiedemann’s plan in 1762, inspired the author to conduct research on the topography of the historical part of Rzeszów. The notion topography is understood here as the landform and arrangement of areas with different ways of development, without interest in the details of

the development of individual plots. Due to the imperfection of Wiedemann’s plan, as well as buildings extended far beyond the area built-up in the 18th century and the insignificant differences in the terrain ordinates, the research was aimed at finding in current space any traces of the former terrain configuration, especially related to the location of ponds. It was assumed that based on the findings made, conclusions will be formulated as to the impact of individual urban planning activities undertaken in later times on the change of this configuration. These conclusions could be interpreted in a broader than local scope.

It was decided that due to the non-obvious connection between the image of the city presented on Wiedemann’s plan and the contemporary urban space of Rzeszów, preserved documents from the intermediate periods, i.e. maps, photographs and urban designs, will be analysed. Topographic maps from the end of the 18th century to the beginning of the 20th century, available online [11]–[13] were obtained, as well as cadastral plans available in the resources of the State Archives in Rzeszów [14]–[20] and Przemyśl [21], including partly also online [21]. In addition, the study used aerial photographs from 1915 [22] and 1944 [23] and an urban design from the early 2nd half of the 20th century [24], located in the archives of the Rzeszów City Development Office, with fragments also available in elaborations [25]–[27].

The current map available via the Geoportal of the city of Rzeszów [28] was taken as the reference. The following layers were used: Plots, Buildings and accompanying objects, and Relief (Fig. 4). The layer of NMT-shading was used supportingly. Similar data can be obtained from the National Geoportal [29], which differs in the interface. Data from the Geoportal were used to carry out comparative studies with the matter of the historical cadastral plan [15] and an aerial photography from 1915 [22]. In addition, a tool available in the Geoportal for generating

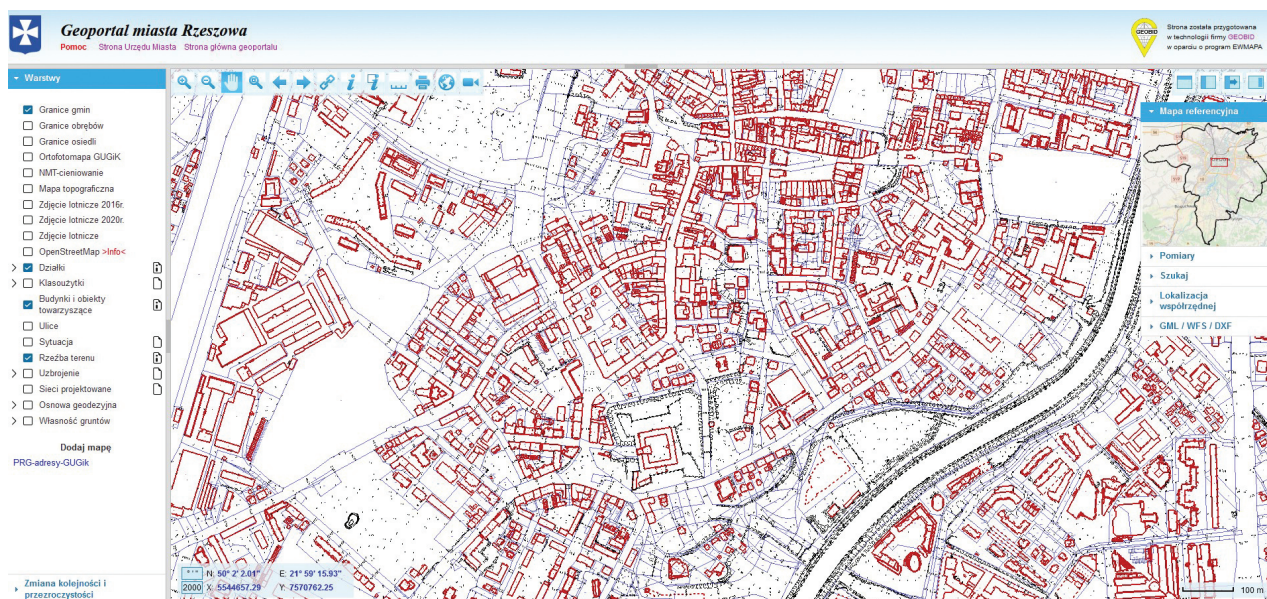


Fig. 4. Geoportal of the city of Rzeszów with highlighted layers used during the research (source: [28])

II. 4. Geoportal miasta Rzeszowa z wyróżnionymi warstwami wykorzystanymi w trakcie badań (źródło: [28])

terrain cross-sections was used. The research was complemented by a site visit in places so untransformed, that as the analyses results confirm, some features of the landform from Wiedemann's times are still retained there. A photographic documentation was prepared during the site inspection.

Analysis of documents representing Rzeszów in times after Wiedemann

Rzeszów at the time of partitions in cartographic documents

The cartographic resource from this period consists of two types of maps: topographic maps and cadastral plans [30]. Due to the fact that Rzeszów found itself in Austria after the First Partition of Poland in 1772, the city and the surrounding area were still within the reach of the Austrian cartographic services in the 18th century. Exactly during this period, work was underway on the so-called Teresian-Josephine survey – a large-scale topographic map, drawn up in the years 1763–1785 in the scale of 1: 28 800 and intended for military purposes [31].

On the fragment of the map (in the literature also referred to as Mieg's map) covering Rzeszów, dating from 1779–1783 [11], three ponds on the western side of the city, known from Wiedemann's plan, are clearly visible (Fig. 5a). According to the nomenclature given by Hennig [10], they will be referred to as Jezioro Bernardyńskie (1), Mały Staw Podzamczy (2) and Wielki Staw Podzamczy (3). The view of this map leads to the reflection that, despite the meticulous, as for the scale used, quantitative mapping of the buildings, its spatial arrangement is not presented precisely enough. Pijarska / 3 Maja Street is not only not marked on the map in accordance with its actual curvature, it is even curved in the opposite direction. This is partly the result of the imperfection of geodetic measurements of the time, and partly due to insufficient diligence, because certain dependencies were noticeable with the naked eye.

Other projects of Austrian cartography were the so-called a Franciscan survey taken in 1806–1868 (Fig. 5b) and a Franciscan-Josephine survey from 1868–1897. The names of all three cartographic elaborations come from the names of the then reigning Austrian emperors [31]. The second map was made in the same scale and technique as the first one, while the third one was made in the scale of 1: 25 000 and the monochrome convention. The fragment of the second study covering Rzeszów comes from the years 1861–1864 [12].

The map resulting from the second survey (Fig. 5b) is developed with greater precision than the 18th-century map (Fig. 5a). The course of Pijarska / 3 Maja Street is consistent with the actual state. Neither Jezioro Bernardyńskie nor Mały Staw Podzamczy can be seen anymore, the areas after them are covered with greenery. Spatial outlines and buildings of the castle grange and castle stables, as well as the outline of the Wielki Staw Podzamczy are visible as before. The place was no longer filled with water, but remained undeveloped. The third survey [13] does not differ from the second one [12] in terms of content, which is due to the small distance between these two mappings.

The cadastral maps were made with a scale ten times more precise (1:2880) than the topographic map. This translated into a more detailed presentation of land use. The map from 1842 [14] is the oldest, but the map from 1849 [21] is the most impressive due to its multi-colouredness. Beyond the ownership division, it contains markings of buildings with the distinction of the material from which they are made, and the arrangement of greenery. The map of Rzeszów [21] (Fig. 6a) does not include all the areas described so far. The castle and the areas previously belonging to the residential complex were within the boundaries of the Staroniwa commune. The cadastral map of Staroniwa from 1849 is also preserved [15] (Fig. 6b). It is drawn up exactly in the same convention as the map of Rzeszów. The topography of the city presented on both maps is similar to the one visible in the Josephine survey, but due to the greater accuracy of the cadastral maps, they are more valuable research material.



Fig. 5. Fragments of topographic maps from the time of the partitions:

a) Teresian-Josephine survey (1779–1783) (source: [11]), b) Franciscan survey (1861–1864) (source: [12])

Il. 5. Fragmenty map topograficznych z czasów rozbiorów:

a) zdjęcie tereziańsko-józefińskie (1779–1783) (źródło: [11]), b) zdjęcie franciszkańskie (1861–1864) (źródło: [12])



Fig. 6. Cadastral maps from 1849: a) map of Rzeszów (source: [21]), b) map of Staroniwa (source: [15])

Il. 6. Mapy katastralne z 1849 r.: a) mapa Rzeszowa (źródło: [21]), b) mapa Staroniwy (źródło: [15])

In the later period of the Austrian rule, cadastral maps of Rzeszów were developed several more times. Maps from 1852 [16], 1879 [17], 1888 [18] and 1909 [19] have been preserved in the State Archives in Rzeszów. Newer maps are graphically poorer. The ones from the 19th century do not include the area around the castle, because the Staroniwa commune was incorporated into Rzeszów only in 1902. Although in the areas west of 3 Maja Street at the turn of the 19th and 20th centuries new streets were marked out and construction developed, the remains of the former farm buildings of the Lubomirski family were still clearly visible.

One more document dated 1829 [20], similar to the map, has been preserved in the State Archives in Rzeszów. It shows the layout and ownership of the real estate in the south-western part of then Rzeszów. Presumably it was prepared for fiscal purposes. The arrangement of individual objects is marked schematically, but this diagram is still a valuable supplement to the information we have about 19th-century Rzeszów.

Rzeszów from the 1st half of the 20th century in aerial photographs

The development of aviation, initiated in 1903, together with the development of photography, which had already been going on for several decades, provided new opportunities for documenting the topography of the area. World War I, during which the possibility of acquiring information about the enemy's positions and the movements

of his troops by means of observations from air-planes was appreciated, was the impulse for the development of aerial photography. Warfare also affected Rzeszów, which was alternately occupied by armies of warring powers. At least three aerial photographs of Rzeszów, taken in 1915, have been preserved, which today are privately owned and are available to the general public only in low resolution [22], [32].

Another collection of aerial photographs of Rzeszów comes from the period of World War II. Despite significant transformations in the land development compared to the state from the 18th century, the photograph from 1944 [23] still provides a noticeable image of the buildings in the area of the former stables and the castle grange consistent with Wiedemann's plan. The area of the former Wielki Staw Podzamcze is similarly noticeable.

Town planning documents from the 2nd half of the 20th century

The location of the capital of the voivodeship in Rzeszów in 1944 was an impulse for the dynamic development of the city. The transformation plans within the historic part of Rzeszów developed in the early post-war period included several variants of solutions [25], [26], but all of them assumed the routing through the city of communication arteries in the east-west and north-south, with the task of taking over the car traffic from the narrow streets of the city centre. The main differences between the variants were in the way the north-south route was



Fig. 7. Drawings for the general spatial development plan of Rzeszów by Z. Wzorek:
a) a study of the reconstruction of the historical urban layout of Rzeszów, b) Rzeszów 1762 – a historical study
(source: [24], Biuro Rozwoju Miasta w Rzeszowie)

Il. 7. Rysunki do planu ogólnego przestrzennego zagospodarowania Rzeszowa autorstwa Z. Wzorka:
a) studium rekonstrukcji historycznego układu urbanistycznego Rzeszowa, b) Rzeszów 1762 – studium historyczne
(źródło: [24], Biuro Rozwoju Miasta w Rzeszowie)

run, on the western or eastern side of the Bernardine monastery and along then Marchlewski (pre-war Skarbowa/Orlicz-Dreszer, now Lisa-Kuli) and Zamkowa Streets or Mochnacki and Hoffmanowa Streets. In each of the variants, the route entered the area of the former Jezioro Bernardyńskie, which was still largely undeveloped.

Especially noteworthy are the spatial development plans for Rzeszów carried out by Zbigniew Wzorek in the years 1947–1953 [25]–[27]. The plans were aimed at depriving the city of its small-town character and giving it features adequate to obtain the rank of a provincial capital. Wzorek saw value in the 18th-century topography of the city known from Wiedemann's plan and strove for its partial restitution, even regretting that reconstruction of the water reservoirs surrounding the city, was not possible [27]. Wzorek's plan was not implemented. Thus, the spatial layout of the former castle stables was not reconstructed, which, apart from providing the city with an impressive urban interior, would allow for the preservation of the buildings of Zamkowa Street and the removal of the north-south route from the oldest part of the city. However, Wzorek's plans to recreate the gardens in the vicinity of the Lubomirski summer palace were less understandable. As the drawings show, the liquidation of the Art Nouveau buildings on Aleja Pod Kasztanami and the modernist buildings of Polski Czerwony Krzyż Street was assumed. In the opinion of the contemporary residents of Rzeszów, these parts of the city, due to these buildings emanate genius loci to the greatest extent.

The results of Wzorek's studies are drawings reconstructing on the current map the urban structure presented by Wiedemann. The reconstructions in the individual

drawings are not strictly identical, in some fragments the interpretation is incorrect due to unreflective reliance on Wiedemann's inaccurate drawing (Fig. 7a). This comment applies especially to the excessively large area of gardens in the summer palace complex. Also, the fanciful shape of Wielki Staw Podzameczy (Fig. 7b) is not confirmed in the topographic maps discussed in the point of Rzeszów at the time of partitions in cartographic documents.

Confrontation of historical sources with the current state

The potential of the current cartographic resource

Geoportal [28], [29] is an excellent research tool in the field of terrain. It enables a visual analysis of the content of the Relief layer, which contains the elevations of points and graphic marks of even low scarps. In addition, it enables viewing of a digital terrain model, which is the effect of 3D laser scanning (NMT-shading layer), as well as generating cross-sections along arbitrarily drawn broken lines.

Contrary to appearances, the view of the DTM brings the least benefits, because in the case of small differences in ordinates, it is difficult to distinguish between the terrain elevation, which is a remnant of its former shape, and smoothness disturbances resulting from the intended levelling around individual buildings, the location of entrances to sunken garages, etc. Viewing the Relief layer is more efficient. Due to the fact that the scarp markings were placed on it in a conscious way, they are an indication of places where it is worth carrying out local visions. The cross-sections, although misleading due to the unevenness



Fig. 8. Reconstruction of the location of the ponds in the garden of the summer palace using an auxiliary planimetric structure:
 a) aerial photo from 1915 (photo courtesy of J. Rudnicki),
 b) contemporary map (1, 2, 3 – buildings used in the construction, OZO – axis of the garden layout, OPL – axis of the summer palace)
 (elaborated by M. Piekarski)

Il. 8. Odtworzenie położenia stawów w ogrodzie pałacu letniego przy zastosowaniu pomocniczej konstrukcji planimetrycznej:
 a) zdjęcie lotnicze z 1915 (zdjęcie dzięki uprzejmości J. Rudnickiego),
 b) mapa współczesna (1, 2, 3 – budynki wykorzystane w konstrukcji, OZO – oś założenia ogrodowego, OPL – oś pałacu letniego)
 (oprac. M. Piekarski)

of the vertical and horizontal scales, may in turn confirm the hypotheses derived from other sources. The map available in the Geoportal, providing the ability to explore in any configuration of layers, is also invaluable material for confrontation with maps and historical photographs.

Analysis of aerial photographs

The purpose of the photos from 1915 [22], [32] was not a photogrammetric mapping of the area, which is why the shots are quite random, moreover, they cover only to a small extent the fragments of the city that are the subject of consideration in this article. One of them shows the view of two depressions in the area where, according to Wiedemann's plan, the gardens of the summer palace with two ponds were located. This topographical detail, which is barely noticeable on the cadastral map from 1849, is easier to read on the photograph due the time of year in which it was taken, because it was before the vegetation turned green. The area in the immediate vicinity of the depressions is undeveloped, but in the further surroundings there are buildings existing to this day, which can be used to prepare a geometric structure, leading to determinate the location of the ponds in the current land arrangement. The transfer of the structure from the archival photograph (Fig. 8a) to the modern map (Fig. 8b) was based on the observation of topological relationships and on approximate measurements along the straight lines that are least deviated from the perspective background, for which the deformation of the distance is negligible. A fully precise design would require taking into account, e.g. also the ordinates of the terrain, and due to the low resolution of the photo and, consequently, the somewhat intuitive drawing of characteristic straight lines on it, the effect would not guarantee correctness either.

The obtained result (Fig. 8b) proves that the axis of the garden layout (OZO) was not an extension of the axis of the summer palace (OPL), as suggested by Wiedemann's plan from 1762 (Fig. 2), although its bend is visible also on it. The lack of parallelism of the compositional axes of the parts of the gardens located in front of and behind the summer palace is clearly visible in the drawing, which is the left part of the triptych (Fig. 1). Since its central part does not show gardens at all, it can be assumed that the side parts are designs that are yet to be implemented, while the view from 1762 shows the effects of implementation. The bend of the compositional axis was probably caused by terrain conditions. Wiedemann, it seems, was an efficient designer, but he was less successful in the field of drawing constructions. It is interesting that a few meters from the back edge of the ponds, an escarpment with a height of approximately 0.8 m has been preserved to this day, both marked on the map [28], [29] and visible in situ. The view in the aerial photograph gives the impression that the pond basins were not recessed in the ground, but formed as a result of being surrounded by a dike. The modern trace may be related to the earlier presence of ponds and dikes, and the slight difference in location is the result of land levelling performed during the construction of the current buildings.

Superposition of maps

One of the ways that can be used to search for relics of the former landform in the current topography of the city is to overlay maps (Fig. 9). The study used the cadastral map of Staroniwa from 1849 [15] (Fig. 6b). The date of its creation is closest to the times of Wiedemann's activity,



Fig. 9. Superposition of the cadastral map of Staroniwa from 1849 (source: [15]) and the current map of Rzeszów with the layers Plots and Buildings and accompanying objects (source: [28])

Il. 9. Superpozycja mapy katastralnej Staroniwy z 1849 r. (źródło: [15]) i aktualnej mapy Rzeszowa z warstwami Działki oraz Budyńki i obiekty towarzyszące (źródło: [28])

and at the same time its accuracy is satisfactory. The map of Staroniwa is more accurate than the map of Rzeszów, because the castle with its surroundings and a complex of ponds and outbuildings were located within Staroniwa, not Rzeszów. Although at the time of creation of the map water reservoirs no longer existed, many composition premises known from Wiedemann's plan were still preserved.

The historical map was superimposed on the current map downloaded from the Geoportál (Fig. 4). The maps were coordinated by adjusting the sections determined by the points of two relatively distant objects: the post-Reformat church and the summer palace. The accuracy obtained is satisfactory, which proves the high craftsmanship of the 19th-century measurers. The experiment also confirmed the results obtained in the analysis described in the section *Analysis of aerial photographs*. A slight discrepancy results from taking the rectangular shape of the troughs, because such an impression is intuitively received from the photographs, while on the map they have trapezoidal shapes.

Analysis of the current master map and terrain cross-sections

Based on the conclusions from the review of archival maps and photographs as well as the analyses carried out, the map available in the Geoportál was re-queried. Attention was paid to the vicinity of the edges of former water reservoirs, assuming their location according to Figure 8. Most traces of the historical topography of the city are visible in the layer showing the ownership division of the area. The lack of compliance concerns basically only those places where expropriation for the construction of roads or large-area buildings was carried out. As far as the height variation is concerned, clear traces of the former topography are visible only in a few places, and the differences in current ordinates are probably smaller than in the period when water reservoirs were located there. In some places, the edges of the former ponds have been softened as a result of filling in the bottom, in others they are now vertical, as a result of levelling the surface of the neighbouring plots to different levels. Plot borders, with fences, retaining walls or walls of buildings preserved

along some of their fragments, walls of buildings on plots with changed borders and scarps are the traces of the former shores (Fig. 10a – yellow). Some of the scarps are shifted by several meters in relation to the indications in the drawing, which is the result of local land levelling, but the very fact of the escarpment's presence seems to be a consequence of historical topography.

The historical topography is confirmed by the terrain cross-sections (Fig. 10a – black). The reason for the deformation of the expected shapes are the streets built in the 20th century, which, due to the class of the road, required the use of thick structural layers. This is especially visible on the C-C section (Fig. 10b), the formation of which results from the construction of Hetmańska Street on a high embankment on the bottom of Wielki Staw Podzamczy.

On-site inspection

The last stage of the research work was the visual verification of the results developed during the study work, carried out on-site. Although the author of the study is a resident of Rzeszów, the results of the research work were partly surprising to him, because most of the established traces of the former topography of the city are located in places not visited on a daily basis, they are not unusual, and moreover, their origin can be determined only as a result of confrontation with archival materials. Figure 11 presents photographs of selected places marked in Figure 10a.

Summary

The results of the research work allow for the formulation of several conclusions of local importance which may be of interest only to researchers and residents of Rzeszów, but some conclusions are also of universal importance. One of the reflections that comes to mind is the statement of the insufficient state of research on the urban development of Rzeszów, which, due to its expansion, absorbed in the 20th and 21st centuries adjacent villages, previously constituting separate rural or manorial areas, without the respect for their individuality. Existing studies are based predominantly on text documents, and the analysis of

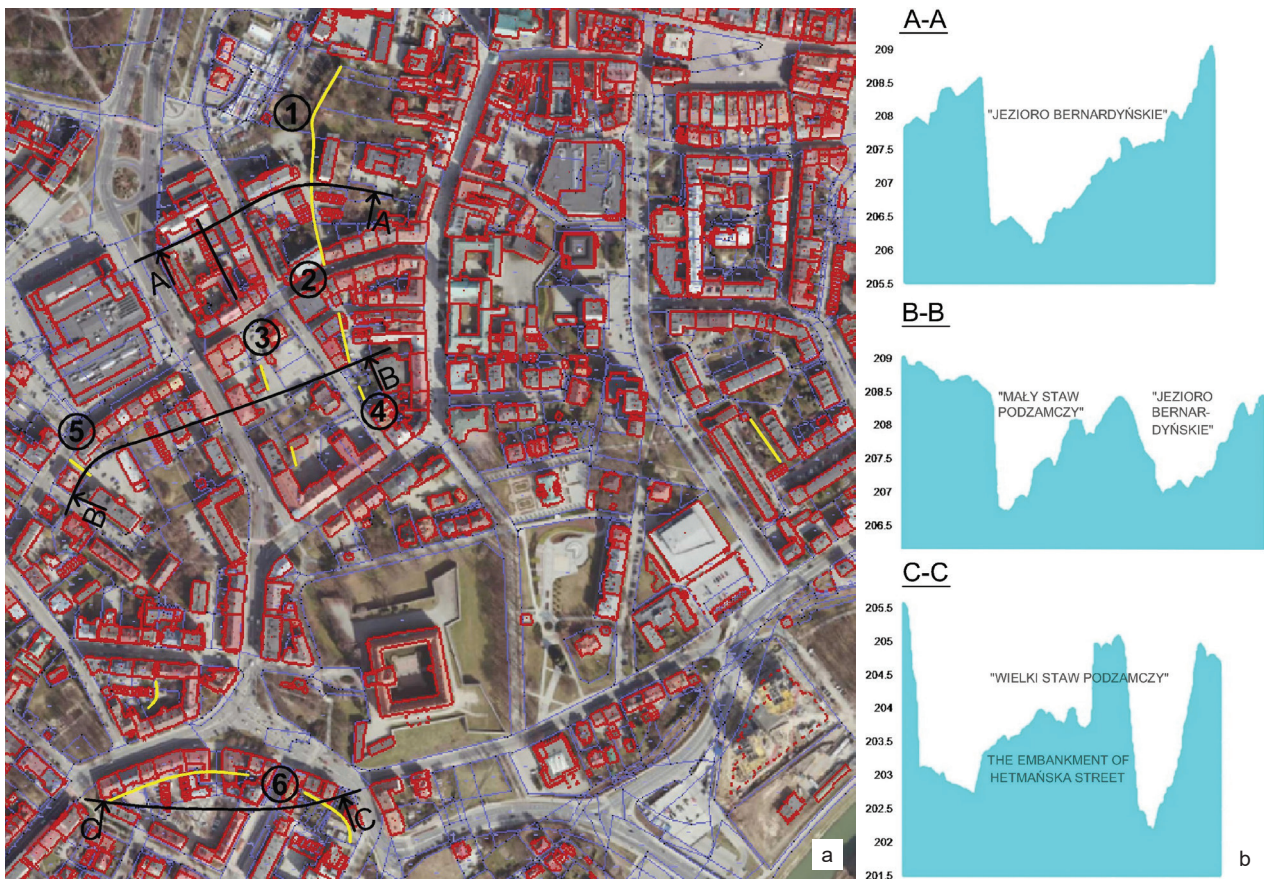


Fig. 10. Recognized traces of shorelines of former ponds in the current structure of the city:
 a) a projection from the Geoportal with the marking of shoreline fragments (yellow), terrain cross-sections (black) and places in which the photos included in Fig. 11 have been taken (circled numbers),
 b) terrain cross-sections
 (elaborated by M. Piekarski)

Il. 10. Rozpoznane ślady linii brzegowych dawnych stawów we współczesnej strukturze miasta:
 a) rzut z Geoportalu z oznaczeniem fragmentów linii brzegowych (kolor żółty), przekrojów terenu (kolor czarny) oraz miejsc, w których wykonane zostały fotografie składające się na il. 11 (numery w kółkach), b) przekroje terenu
 (oprac. M. Piekarski)

cartographic documents is inexact and not sufficiently related to the analysis of contemporary land use. The ignorance of this aspect in the previous studies is partly justified by the greater difficulty in using cartographic material at a time when it could not yet be available in digital form.

The research carried out extends the available stock of knowledge with a new particle, based on analyses using modern geoinformatic technologies. It is important both for researchers and for residents because it can have a positive impact on the feeling of being rooted in a given area, and thus strengthening the social bonds in the local community. The author bases his reflection on the observation of thematic walks around Rzeszów organized in recent years by various cultural institutions, which enjoy considerable interest of the inhabitants, often exceeding the organizers' expectations. Finding the past in the present, through the assimilation of historical artefacts palpable in the city space despite the passage of time, has also the potential to build a comforting view of the future as a state in which traces of the current present will also be kept.

The main goal set at the beginning of the research, i.e. finding traces of water reservoirs surrounding 18th-century

Rzeszów, has been achieved. However, this does not mean that the location of these reservoirs has been fully established. The search will continue. With regard to Rzeszów, a broader analysis of the arrangement of elements shaping the topography of Staroniwa and other villages that are currently part of Rzeszów can be adopted as the next research goal, due to the availability of rich cartographic collections in the archival resources. Areas not previously covered with buildings or built only with wooden buildings, not preserved to this day, will cause difficulties. The coordination of historical maps with the contemporary map will require a different method of proceeding, i.e. finding permanent topographic objects other than buildings. The method of overlapping maps as a tool for finding in the terrain the location of objects shaping its historical topography can be a universal method, provided that the detailed procedure is adapted to local conditions.

In general terms, research on the transformation of the city's topography draws attention to the terrain as an element of the cultural landscape, which is still poorly perceived in the issues of heritage protection. The changes described in the article took place either in the 19th century,



Fig. 11. Traces of shores of 18th-century water reservoirs:

- a) wall (marked as 1 in Fig. 10a), b, c) walls of buildings (marked as 2 and 3 in Fig. 10a), d) fence (marked as 4 in Fig. 10a),
 e) low escarpment (marked as 5 in Fig. 10a), f) high escarpment (marked as 6 in Fig. 10a)

(photo by M. Piekarski)

Il. 11. Ślady brzegów XVIII-wiecznych zbiorników wodnych:

- a) mur (na il. 10a oznaczony jako 1), b, c) ściany budynków (na il. 10a oznaczone jako 2 i 3), d) ogrodzenie (na il. 10a oznaczone jako 4),
 e) skarpa niska (na il. 10a oznaczona jako 5), f) skarpa wysoka (na il. 10a oznaczona jako 6)

(fot. M. Piekarski)

when the liquidation of ponds was a remedy for the management of the material from excavations for new buildings, the need for new investment areas, as well as sanitary nuisances, or in the 20th century, when the priority of the city's development was overriding, which is confirmed by ignoring the plans developed by Zbigniew Wzorek. The lack of respect for the terrain configuration as an element shaping the city's identity was also characteristic of later periods, as well as it is recently. Against the background

outlined above, the issue of ownership division of land looks better. In places not affected by land consolidation for large-area public investments, the cadastral division of the area remains unchanged even for centuries, sometimes only in the form of a drawing on the map, no longer reflected in the physical divisions of space.

*Translated by
 Maciej Piekarski*

Acknowledgements

Many thanks to Mr. Jacek Rudnicki for providing a digital version of the photograph of Rzeszów from 1915, which helped me to make a more accurate geometric construction.

References

- [1] Kotula F., *Tamten Rzeszów*, MITEL, Rzeszów 2003.
- [2] *Dzieje Rzeszowa*, F. Kiryk (red.), t. 1, Krajowa Agencja Wydawnicza, Rzeszów 1994.
- [3] Malczewski J., *Dzieje Rzeszowa do roku 1914*, Muzeum Okręgowe, Rzeszów 1985.
- [4] *Encyklopedia Rzeszowa*, J. Draus, G. Zamoyski (red.), Oficyna Wydawnicza "Zimowit", Rzeszów 2016.
- [5] Kwolek J., Malczewski J., *Historia i rozwój przestrzenny Rzeszowa od powstania do współczesności*, "Renowacje i Zabytki" 2015, nr 3(55), 44–63.
- [6] Mącik H., *Ulica 3 Maja w XVII–XX wieku*, [in:] J. Rogóż, H. Mącik (red.), *Ulica 3 Maja w Rzeszowie*, Wydawnictwo UR, Rzeszów 2019, 67–102.
- [7] Ochenduszko T., *Dzieje Rzeszowa do 1918 roku. Kalendarium*, MITEL, Rzeszów 2006.
- [8] Kłós S., *Rzeszów. Przewodnik*, Krajowa Agencja Wydawnicza, Rzeszów 1993.
- [9] Świeboda J., *Collegium Resoviense w życiu Polaków 1658–1983*, Rzeszowskie Zakłady Graficzne, Rzeszów 1983.
- [10] Hennig W., *Rzeszowski alfabet miejsc często zapomnianych i osób z nimi związanych*, Podkarpacki Instytut Książki i Marketingu, Rzeszów 2012.
- [11] *Galizien und Lodomerien (1779–1783)*, <https://maps.arcanum.com/en/map/firstsurvey-galicia> [accessed: 18.03.2023].
- [12] *Galicia and Bucovina (1861–1864) – Second military survey of the Habsburg Empire*, <https://maps.arcanum.com/en/map/secondsurvey-galicia> [accessed: 20.03.2023].
- [13] *Habsburg Empire (1869–1887) – Third Military Survey (1:25000)*, <https://maps.arcanum.com/en/map/thirdsurvey25000> [accessed: 20.03.2023].
- [14] *Plan miasta Rzeszowa z 1842 roku*, [manuscript in: AP, Rzeszów, sign. 59/1/0/8/1151].
- [15] *Dorf Staroniwa sammt den Ortschaften Podzamcze, Wygnaniec, Psiarnisko und Rudki in Galizien, Rzeszower Kreis*, [1849–1852], [manuscript in: AP, Rzeszów, sign. 59/1313/0/-/3292].
- [16] *Stadt Rzeszow in Galizien, Kreis Rzeszow*, [1852], [manuscript in: AP, Rzeszów, sign. 59/1313/0/-/2073].
- [17] *Stadt Rzeszow in Galizien*, [1879], [manuscript in: AP, Rzeszów, sign. 59/1/0/8/1152].
- [18] *Miasto Rzeszów w Galicji*, [1888], [manuscript in: AP, Rzeszów, sign. 59/1313/0/-/3404].
- [19] *Miasto Rzeszów w Galicji*, [1909], [manuscript in: AP, Rzeszów, sign. 59/1313/0/-/3407].
- [20] *Ideal Plan des sundlichen Thailes der Stadt Rzeszow*, [1829], [manuscript in: AP, Rzeszów, sign. 59/1/0/8/1150].
- [21] *Stadt Rzeszow sammt Enclave Ruska Wieś in Galizien Rzeszower Kreis*, [1849], [manuscript in: AP, Przemyśl, sign. 56/126/0/-/1468M].
- [22] Rudnicki J., *Rzeszów. Rok 1915. 100 rocznica odbicia miasta z rąk Rosjan. Epizod Wielkiej Wojny*, Libra, Rzeszów 2015.
- [23] *20 sierpnia 1944, Rzeszów. GX4143 F2954 SD. Ogniskowa 755 mm, skala 1:12 000, Zdjęcie #105*, https://fotopolska.eu/Rzeszow_Z?f=1279961-foto [accessed: 20.03.2023].
- [24] Wzorek Z., *Studia do planu ogólnego Miasta Rzeszowa i Planu Szczegółowego Śródmieścia 1947–1953*, [manuscript in: Archiwum Biura Rozwoju Miasta Rzeszowa].
- [25] Moskal T., *Wpływ założeń Ogólnego Planu Zabudowania miasta Rzeszowa z 1939 roku na dokumenty planistyczne miasta w latach 1939–2003*, PhD thesis, Politechnika Krakowska, Kraków 2018.
- [26] Moskal T., *Problematyka kształtowania śródmieścia miasta. Studia nad rozwojem przestrzennym Rzeszowa*, "Przestrzeń/Urbanistyka/Architektura" 2020, Vol. 2, 125–147, doi: 10.4467/00000000PUA.20.013.13062.
- [27] Wzorek Z., *Rzeszów – studia do planu śródmieścia*, "Miasto" 1953, 9(35), 21–25.
- [28] <https://osrodek.erzeszow.pl> [accessed: 20.03.2023].
- [29] <https://mapy.geoportal.gov.pl> [accessed: 20.03.2023].
- [30] Malczewski J., *Dawne plany, mapy i widoki Rzeszowa*, Muzeum Okręgowe, Rzeszów 1985.
- [31] Faluszczyk F.P., *Kartografia Galicji Wschodniej w latach 1772–1914*, Wydawnictwo UR, Rzeszów 2011.
- [32] *1915, Rzeszów w Galicji. Zdjęcie lotnicze z wysokości 1400 m*, https://fotopolska.eu/Rzeszow_Z?f=1688371-foto [accessed: 20.03.2023].

Abstract

*Topography of the 18th-century Rzeszów and its relics
in the contemporary architectural and urban space of the city*

One of the icons of Rzeszów is the 18th-century perspective view of the city, known as the Wiedemann plan. The view shows the buildings and topography of the city, which was then surrounded by a system of ponds and backwaters. All representative buildings have been preserved to this day, although in slightly changed forms. Ponds and backwaters do not exist.

The study described in the article was aimed at finding traces of the shores of these water reservoirs in the modern topography of the city, which is very much transformed. Maps and aerial photographs from the times when traces of the 18th-century topography were more visible were used for this purpose. The content of cartographic sources was used by overlaying digital versions of maps: historical and current, calibrating the image using a pair of points belonging to two distant objects with unchanged shapes. The information contained in the photograph was verified by making analogous geometric constructions on the photograph and on the current map. The culmination of the study was an in-situ reconnaissance. Many still clear traces of the former topography were found in the area, which may be imperceptible to an outside observer.

The obtained results introduce a correction to the Wiedemann's plan, which mapped the spatial structure of the city partly incorrectly. They supplement the knowledge base about Rzeszów, which does not sufficiently cover spatial and urban issues. They draw attention to the ignored element of the urban cultural landscape, which is the topography, often insufficiently protected.

Key words: urban planning, Rzeszów, heritage protection, topography

Streszczenie

Topografia XVIII-wiecznego Rzeszowa i jej relikty we współczesnej przestrzeni architektoniczno-urbanistycznej miasta

Jedną z ikon Rzeszowa jest XVIII-wieczny widok perspektywiczny miasta, znany jako tzw. plan Wiedemanna. Na widoku przedstawione są budynki oraz topografia miasta, które było wówczas otoczone systemem stawów i rozlewisk. Wszystkie reprezentacyjne budynki, chociaż w nieco zmienionych formach, są zachowane do dzisiaj. Stawy i rozlewiska nie istnieją.

Celem autora w badaniu opisanym w artykule było odnalezienie śladów po brzegach tych zbiorników wodnych we współczesnej topografii miasta, która jest bardzo zmieniona. Posłużono się do tego mapami i fotografiami lotniczymi z czasów, kiedy ślady XVIII-wiecznego ukształtowania terenu były bardziej widoczne. Treść źródeł kartograficznych wykorzystano poprzez nałożenie na siebie cyfrowych wersji map: historycznej oraz aktualnej, kalibrując obraz za pomocą pary punktów przynależnych do dwóch oddalonych od siebie obiektów o niezmiennych bryłach. Informację zawartą w fotografii zweryfikowano poprzez wykonanie analogicznych konstrukcji geometrycznych na fotografii oraz aktualnej mapie. Zwińczeniem badania był rekonesans in situ. W jego trakcie znaleziono w terenie wiele wciąż wyraźnych śladów dawnej topografii, które dla postronnego obserwatora mogą być niezauważalne.

Uzyskane rezultaty wprowadzają korektę do planu Wiedemanna, odwzorowującego strukturę przestrzenną miasta częściowo błędnie. Uzupełniają stan wiedzy o Rzeszowie, która w niedostatecznym stopniu obejmuje zagadnienia przestrzenno-urbanistyczne. Zwracają uwagę na ignorowany element miejskiego krajobrazu kulturowego, jakim jest ukształtowanie terenu, często niedostatecznie chronione.

Słowa kluczowe: urbanistyka, Rzeszów, ochrona dziedzictwa, topografia

