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THREE PROPOSALS FOR THE RECONSTRUCTION OF THE EAGLE PAVILION
IN THE BRANICKI GARDEN IN BIAŁYSTOK – DESIGNS, METHOD
SELECTION AND EXECUTION

TRZY KONCEPCJE REKONSTRUKCJI PAWILONU POD ORŁEM W OGRODACH
BRANICKICH W BIAŁYMSTOKU. PROJEKTY, WYBÓR METODY I REALIZACJA

Abstract

This article describes three reconstruction designs for the Eagle Pavilion (Pawilon pod Orłem, trans. by author) developed by three architects at different moments in history and created using different methods in accordance with the technical means available at the time. The article presents a comparative analysis of the methodologies applied with these designs with regard to the context of the historical accuracy of reconstruction. In the conclusion of the article, I refer to the dilemmas related to the justification of restoring historical objects understood as the reconstruction of historical space, as well as the risks of conveying improper meaning that bears the appearance of authenticity.

Keywords: reconstruction, heritage buildings, architectural conservation

Streszczenie

Przedmiotem artykułu są trzy projekty rekonstrukcji Pawilonu pod Orłem, opracowane przez trzech architektów w różnych przedziałach czasowych, realizowane przy użyciu różnych metod w zależności od dostępnych środków technicznych. W artykule przeprowadzona zostanie analiza porównawcza zastosowanej w nich metodologii w kontekście wiarygodności historycznej rekonstrukcji. W konkluzji artykułu odniesiono się do dylematów związanych z zasadnością przywracania dziedzictwa w formie szeroko rozumianych rekonstrukcji zabytkowej przestrzeni i związanych z tym niebezpieczeństw błędnego przekazu noszącego pozory autentyczności.

Słowa kluczowe: rekonstrukcja, zabytki, konserwacja architektury



Fig. 1. Eagle Pavilion, Białystok: fragment of an engraving by Rentz and a view of the current state following the reconstruction of the gazebo

1. Introduction

Reconstructions of buildings that have not survived, as well as the recreation of forms, massings and architectural details on the basis of preserved relics and source materials, were developed in the past using various graphical techniques, or in the form of mock-ups, with various digital technologies that have recently entered use. Visual reconstructions serve not only as a cognitive purpose, but – developed into the form of a construction-phase design – can become a basis for future development projects. The subject of the

article is a collection of three designs for the reconstruction of the Eagle Pavilion located in the garden salon of the Branicki Palace in Białystok. The designs were developed by three architects in different time periods, with the use of different research methodologies and design tools.

Białystok's residential complex, called the Polish (Podlachian) Versailles¹ [3] across Europe in the eighteenth century, owes its construction to Jan Klemens Branicki, who had been expanding the residence up to the end of his life and left it unfinished. Its gardens, based on an axial, multi-directional geometric layout compositionally subjected to the palace and linked with it through a shared ideological programme, were an essential element that enhanced its splendour. The composition of the garden had a two-level layout, with a division into an upper and a lower section. The upper terrace featured the parterres of the garden salon, comprised of eight embroidery-type beds with boxwood patterns. This section was delineated by a canal and ponds from the northwest and by a tall wall of rows of linden and hornbeam trees, creating a bosquet from the southeast. The upper terrace was enclosed by a stone balustrade with fountains and sculptural decorations; from the side of the canal, the central perpendicular axis culminated in the openwork gazebo of the Eagle Pavilion that towered above the parterres (the name was derived from a sculpture of a gilded eagle that topped its dome) [4].

We can read the following about the pavilion in the inventory of the entire property written in 1772 after the death of Jan Klemens Branicki: "A treillage gazebo from (...) the side of the garden, with four arcades painted in a green check pattern, on whose surface, facing front from the garden, there is timber trophy of arms painted white, and near it, to its sides are two wooden antiques, gilded. A small timber vase above the trophy of arms, carved and gilded. A descending eagle at the top of the gazebo – made from timber, gilded, carved. Its surrounding floor is made of stone, with four wooden benches surrounding it, covered in stone near the arcades, with two stone steps inside, a wire grate on four of its corners, in poor condition, for birds. A porch is around it, with a stone floor, surrounded by an iron grate. Descending downwards from the gazebo to the lower garden are two sets of stairs, with stone on both sides, upon which there is an iron grate, underneath, along the stairs, placed on the stone. There is a small cascade underneath this gazebo, which stretches all the way to the lower garden, reinforced with stone. A Neptune of stone, placed in a wall, carved, meant to let water from underground – from the fountains – into the canals in the lower garden. The gazebo stands on a masonry base, which is boarded, on the side where the treillage gazebo is placed there runs a stone balustrade, painted white, on a masonry base (...)" [2, p. 246].

After Jan Klemens Branicki's death, his rich legacy of manuscripts, extensive correspondence and other important sources (itineraries, lists, receipts for completed works, etc.) was divided and scattered. The primary source for recreating the appearance of Branicki's Białystok residence is the fragment of the inventory list from 1771/1772 quoted above, which is stored in the Central Archives of Historical Records in Warsaw, in the archive section of the Potocki family from Roś. Branicki's private correspondence concerning construction and

¹ Naming issues are discussed by Jan Nieciecki in the article "Polish Versailles" – Białystok of Jan Klemens Branicki.

artistic projects is also located here. Numerous mentions of the Białystok residence can also be found in period texts such as guidebooks, memoirs and reports by travellers who relayed their impressions – full of amazement – of the palace and its surroundings. The urban layout of the city and the residence is displayed on a small number of preserved plans from the second half of the eighteenth and the beginning of the nineteenth century, with the palace's external appearance, as well as that of its garden furniture (pavilions, fountains) found in iconographic sources from the collection of Stanisław August; this is stored in the Engravings Office of the Warsaw University Library. A series of copper engravings that document the appearance of the garden, commissioned by Branicki and made by Michael Heinrich Rentz on the basis of drawings by Jan Henryk Klemm, is of very high epistemic value. We know of four views stored at the Princes Czartoryski Museum in Krakow and one copper engraving in the collection of the Medical University in Białystok. The collection of the Bibliotheque Nationale in Paris features four drawings made by Pierre Ricaud de Tirregaille, a French architect and engineer, a specialist in water systems, who was hired by Branicki in the years 1752–1757. These depict a view of the courtyards in front of the palace, a view of the upper garden, a fragment of the garden with a Chinese gazebo and a small palace on Wysoki Stoczek [6]. Another important source is a collection of photographs from the period of the First World War and from the 1930's and 1940's, collected in the so-called Glinka's Files² [7].

2. Comparative analysis of three design proposals

Based on an analysis of source and iconographic materials, the Eagle Pavilion is a spacious gazebo with a treillage structure that was used as an aviary in Branicki's times. The upper part of the pavilion, situated at the level of the garden salon, was a timber structure with a square-based plan, crowned with a latticework dome with a sculpture of an eagle on its top. The part of its ground level that was accessible from the lower garden had a masonry structure with a wall fountain (cascade) on the frontal wall which directed the water from the fountains to the canal. The upper and lower sections were linked with external stairs. The gazebo was painted green, the colour providing a background for the remaining decoration. The sculptural decoration was gilded (busts on corbels flanking the entrance from the side of the garden salon and the crowning sculpture of a descending eagle), the 'armature', which probably meant the trophy of arms on the tympanum, was painted white, with the latticework possibly also being white.

In 1946, the Chief Office of Museums and the Preservation of Historical Monuments commissioned arch. Stanisław Bukowski to design the reconstruction and adaptation of the former Branicki Palace into a people's culture palace and regional museum. The design was developed on the basis of guidelines by the General Heritage Conservator at the time, Prof. Jan Zachwatowicz, as well as on the basis of studies by the art historian Jan Glinka. The main

² Glinka's Files was classified by Prof. Teresa Zielińska, who works at the Central Archives of Historical Records in Warsaw.

conservation objective was to reconstruct the palace with regard to its form and architectural features from the middle of the eighteenth century, with the removal of alterations from the nineteenth century that had been made by Tsarist authorities. Work began in the 1950s on a design of the restoration of the garden complex, authored by Prof. Gerard Ciołek. The garden architecture design, including the completed designs of the Italian Tuscan pavilion, the retaining wall of the upper terrace and the bridge, as well as the design of the Eagle Pavilion that was not put to use (dated to 1950), were prepared by the architect Stanisław Bukowski. The second design for the reconstruction of the gazebo, which was also not put to use, was developed by the architect Jerzy Tryburski in 1971. Both documentations are kept in the archive of the Podlachian Voivodeship Conservator of Historical Monuments in Białystok. The third proposal for the reconstruction, which was completed in the years 2009–2011, was prepared by the author of this article. The three documentations, despite being largely based on the same input data and source materials, differ significantly because of the different approaches to reading them, particularly in terms of the fundamental dimensions of the building, the proposed construction technology and the architectural details.

The design of the reconstruction of the gazebo developed in around 1950 by the architect Stanisław Bukowski featured a building on a square-shaped plan, with a 7.30 m long side, with a single storey and a height of 12.40 m, with a single-space interior covered with a flat deck supported by timber beams. In Bukowski's proposal, the pavilion had a masonry structure, with walls that were 58 cm thick, covered by a dome (featuring a timber structure), clad with metal sheets and panels imitating treillage. It had facades divided by two pairs of Corinthian pilasters supporting an entablature, with an arcade entrance from the side of the garden salon, accentuated with a triangular jerkinhead topped with a vase, with the panels between pilasters filled with a wooden grate imitating treillage. The pseudo-latticework dome covering the pavilion was crowned by the sculpture of a bird (an eagle) on top of a sphere. The tympanum above the entrance was decorated with trophies of arms, the frieze of the entablature was decorated with rosettes, while the intermediate panel of the dome was adorned with festoons. In the interior, at the height of the column heads and below the ceiling, there were profiled parapets that encircled the space.

The design by the architect Jerzy Tryburski was developed in 1971. The building was designed on a square-shaped plan, with a side of 7.24 m long, with a single storey and a height of around 12.30 m with a single-space open interior, with arcade openings in its four walls. As was the case with the previous proposal, a masonry building was designed with 62-cm-thick walls. In this version, the pavilion was covered with a concrete floor slab and topped with an openwork dome made from wooden laths and of an unspecified structure. The articulation of the facade was designed in the Doric order with openings between pilasters filled with a wooden latticework and the entrance at the axis of the facade topped with a semi-circular arch. The facade from the side of the garden salon featured a triangular jerkinhead topped with a vase. The tympanum was filled with trophies of arms, while the latticework dome was decorated with pelmets featuring swags and was topped with a sculpture of a bird (an eagle) on a sphere. The arches of the entrance openings featured decorative zwickels, while the frieze of the entablature featured rosettes and the intermediate panel of the dome was decorated



with festoons. The interior walls were encircled by a profiled parapet. The floor was made from square-shaped sandstone tiles.

The third conceptual design proposal, which was completed in the years 2009–2011, was designed by the author of the article. The building was designed to feature a square-shaped plan with a 5.40 m side, with a single storey and a height of 8.50 m, a single-space interior and arcade openings at the axes of its four walls covered with a latticework dome. In contrast to the other proposals, a timber pavilion was designed with a reinforcing steel structure. Its covering was designed in the form of a timber latticework dome with a bell-like cross section, the band of its base is decorated with an ornamental festoon, with the dome being topped with a lambrequin at the base of a sculpture depicting an eagle with its wings spread out sitting on a sphere crowning the entirety of the structure. The facades were divided with pairs of Doric pilasters, supporting an entablature with rosettes featured on a frieze. The frontal facade from the side of the garden salon was accentuated with a triangular jerkinhead topped with a vase, while the structure's tympanum was filled with trophies of arms. The zwickels above the arcade of the entrance feature floral ornaments with busts on corbels placed on the lateral axes. Inside, at the height of the entablature, there are profiled parapets that encircle the space. The floor is made from sandstone tiles.

The three documentations, despite being largely based on the same input data and source materials, differ from each other due to different approaches to reading them, particularly in terms of the main dimensions of the structure, the proposed construction technology and the architectural details.

2.1. Architectural form, conceptual design of the massing

Upon comparing the architectural form and massing of the structure, we can observe that the three proposals are similar in terms of proportions, which is as a result of properly reading the relevant engraving. The slight differences are the result of the different approaches to detail.

2.2. Structure, material, technology

We can observe significant differences in terms of the gazebo's structure. The first and second design featured masonry walls, while the third gazebo is made from timber with steel structural elements. The structure of the decks is also different: Stanisław Bukowski designed a deck supported by timber beams, Jerzy Tryburski proposed a concrete vault, while the third proposal adopted a partial covering with a coffered ceiling supported by timber beams and leaving the openwork wooden dome visible.

2.3. Building techniques and aesthetic

In the proposal by Stanisław Bukowski, wooden laths imitating treillage were placed directly on the walls and the covering of the dome. The designer did not include true latticework openings in the spaces between the pilasters and on the dome, which is why the structure did not give the impression of the lightness of a latticework gazebo. In the design by Jerzy Tryburski, the

openings between the pilasters are filled with a latticework grate, with the dome also featuring latticework. This proposal is definitely closer to the concept of treillage gazebos.

In the third proposal, a different principle for constructing the aesthetic of the building was proposed, along with a structure with a fairly significant amount of latticework elements. Timber treillage pilasters were designed, with the spaces between them filled in with latticework screens. The dome was given a similar treatment as its latticework can be seen both from inside and outside of the gazebo.

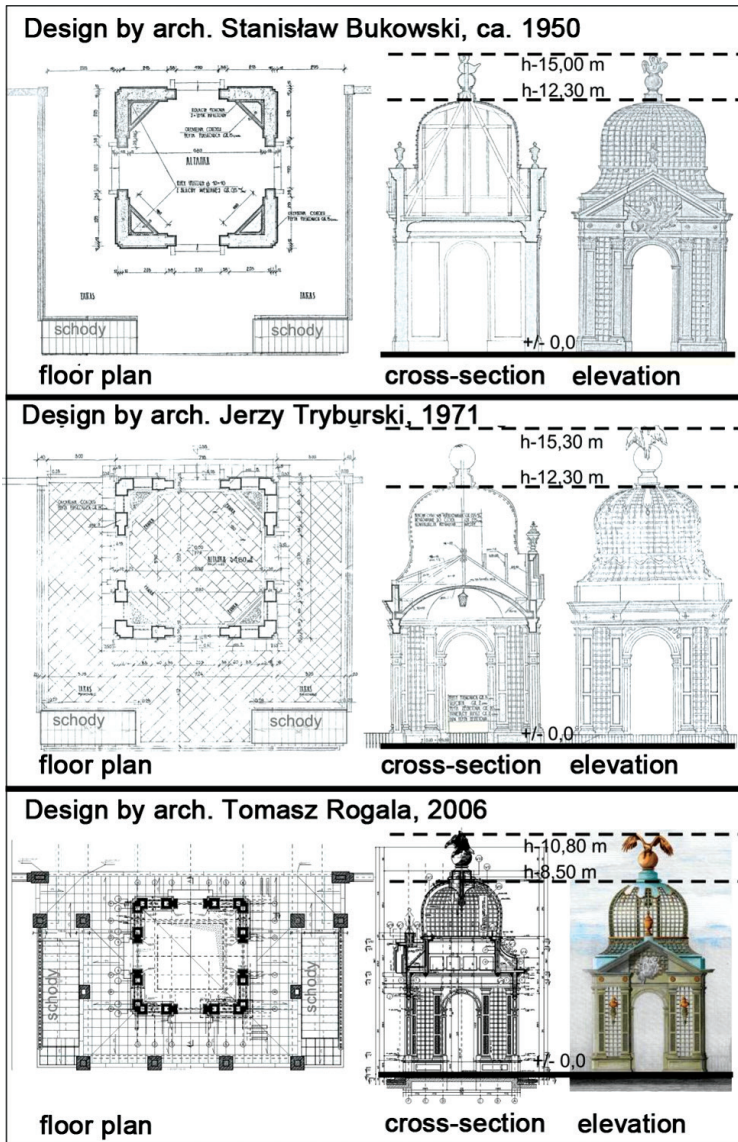


Fig. 2. The Eagle Pavilion, Białystok: comparative analysis of the form, structure, technology and aesthetic of the building

2.4. Dimensions and spatial layout

The most significant differences between the proposals can be observed when comparing the scale of the structures. The first two proposals differ only slightly from each other, and there are significant differences observed when compared with the third:

- ▶ The differences in the dimensions of the plan of the gazebo amount to 190 cm and 184 cm (between proposals 1 and 2, respectively, and proposal 3).
- ▶ The differences in the height dimension of the gazebo, measured to the base of the eagle, amount to 390 and 380 cm (between proposals 1 and 2, respectively, and proposal 3).
- ▶ The differences in the height dimension of the gazebo, measured to the top of the eagle, amount to 450 and 420 cm (between proposals 1 and 2, respectively, and proposal 3).

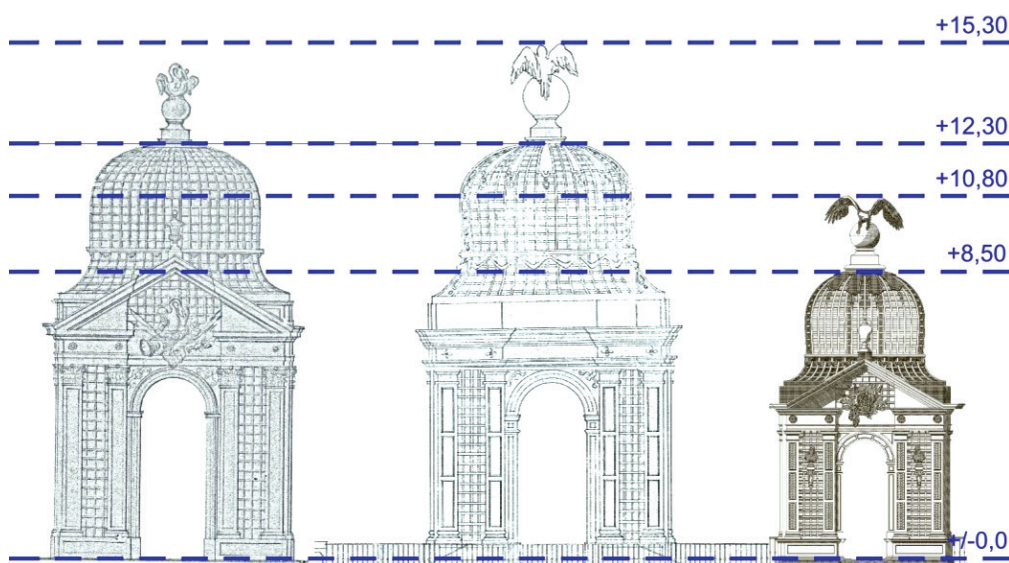


Fig. 3. The Eagle Pavilion, Białystok: comparative analysis of the size of the gazebo as proposed in the three design proposals

The comparative analysis of the three documentations presented above leads to the question as to the design methodology that was employed and the historical fidelity of the proposals and presents problems associated with working on developing the reconstruction hypotheses, particularly under conditions in which there is only a negligible amount of authentic substance or a complete lack thereof. The first documentation is dated to the period of the intense reconstruction of heritage buildings after the Second World War. The second period is the 1970s, with the development of the third design coinciding with a period of development of digital technologies and an evolution of research and design tools, which has caused significant changes in the methods of work employed by architects, heritage conservators and architecture historians. The effects of these three designs are completely different.

3. Research methods and their use in the design of the pavilion's reconstruction

One of the elements that guarantee proper reconstruction is the analysis of written and iconographic sources, as well as their up-to-date interpretations. New studies concerning the authenticity of documents and their dating are constantly appearing, while technological progress in image processing has made it possible for us to obtain a greater amount of precise details, which, in the case of iconographic material, is of fundamental importance. We do not know what quality of iconographic material had been at the disposal of Stanisław Bukowski; however, based on his design, we can see that he erroneously read the orders of the pilasters and ignored a portion of the sculptural decoration. Jerzy Tryburski had probably had a better copy of the engraving as the order of the pilasters and the sculptural decorations in his design were the same with those on the engraving.

The development of the global Internet network has made sharing, storing and conducting studies – as well as access to archival materials and documentation – much easier as we can familiarise ourselves with the catalogues of the largest libraries without any restrictions, which is why I had at my disposal almost the entirety of the available iconographic material and the ease with which one can currently search for structures for comparison undoubtedly gave me an advantage over the authors of earlier designs.

3.1. On-site research

The basis for developing proper reconstructions are diligent on-site studies. Archaeological work from 1997 performed by Prof. Andrzej Kola did not result in obtaining the expected information. “It was not possible to delineate the outline of the footing section of the Eagle Pavilion gazebo ... its remains, if any, were either covered or destroyed during construction work meant to reconstruct the gazebo that had been performed here over a decade ago” [1, p. 57].

3.2. Study of the pavilion's geometry

The greatest amount of data concerning the pavilion's geometry was provided by digital analyses of iconographic materials featuring the architecture of the pavilion along with a restitution of the space of the garden salon.

Iconographic materials in the form of drawings, photographs and graphics do not contain specific information describing the geometry of architecture. This is why analysing a space on the basis of a two-dimensional drawing or photograph necessitates the search for a three-dimensional form of the building that will enable a more precise display of its geometric properties.

One of the methods of determining the shape of a form is an analysis that utilises the properties of perspective projection. Sketches, floor plans, cross sections and facades prepared in this form in relation to the entire massing or individual details can become a basis for preparing either a traditional or a virtual model. Such a recreation of architectural elements makes it possible to understand the proportions or mutual dependencies between each

element, but it does not always provide definitive information concerning the dimensions of a building or its location.

When defining a building, we must start by determining its location. It is typically defined as a space, the base of which is equivalent to ground level. The location of the building on a drawing is not always legible, but elements that indicate its placement can be present (surfaces, walls, roofs, paths), forming distinct markers which make it possible to perform the first analyses of the space of a two-dimensional drawing. The mutual spatial linking of these distinct elements (markers) can be connected into a cohesive whole, e.g. a digital 3D drawing.

Another part of architectural space analysis is its interpretation on the basis of recreating the process of the construction of a building, which we can currently perform by building a three-dimensional model (either a digital or an analogue model). The reconstruction of a building that does not physically exist requires the interpretation of the collected material, adding commentary and description to it and identifying the most significant phases that the process was composed of.

The interpretation and analysis of materials concerning the Eagle Pavilion took place in the phases described below.

The first phase was the analysis of drawings and sketches and a review of the literature and ongoing studies. This stage featured the identification of reference objects, which made it possible to search for references and interpret the form.

The second phase was an analysis of the proportions and interdependencies between the pavilion's individual elements in relation to the palace and the garden complex (Fig. 4a). This made it possible to create a three-dimensional layout of reference points (markers) and mutual linkages, presented as the third phase. During this stage, a detailed analysis of proportions, shape and location was performed, using the coordinate system of a previously prepared grid based on a survey map (Fig. 4b). The data concerning the perspective projection parameters obtained in this manner (e.g. observer location) made it possible to obtain side views of the surfaces of the facade and the floor plan and compare the pavilion geometry with earlier geometric constructions (Fig. 4c).

The fifth phase was the drawing of architectural details and decoration (Fig. 4d).

The sixth phase was the verification of mutual linkages and the correctness of the elements, the removal of errors in the structure of the entire model and making the final architectural model along with the construction documentation and visualisations (Fig. 4e). Digital visualisations were of a form that presented the results of the virtual reconstruction process and served as a tool for the verification of the correctness of the design documentation. The presentation of the architectural drawings, due to their high degree of detail, does not provide a complete image of the building being designed, while the presentation in the form of images or animations makes it possible to see the design as intended by the author.

The seventh phase was the stage of the construction of the pavilion (Fig. 4f).

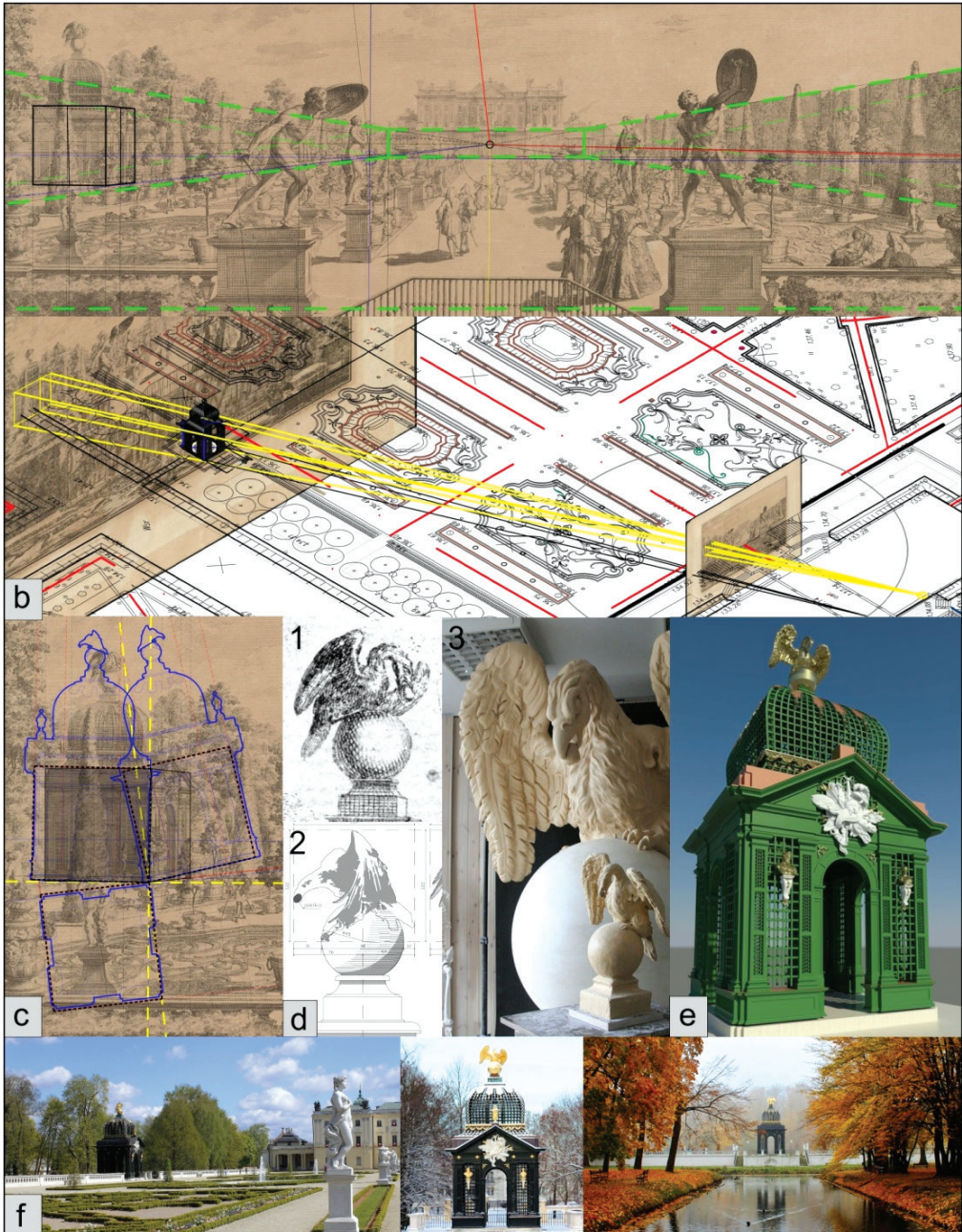
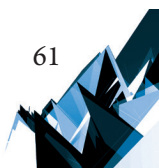


Fig. 4. The Eagle Pavilion, Białystok: a) selected example of the analysis of the height of the pavilion relative to the height of the bosquets and palace facade parapets, b) digital 3D analysis of the placement and proportions of the gazebo on the basis of a survey map and an engraving placed in various projection planes of the plan, c) geometric construction of the gazebo's facade plane rotations, d) sculptural decoration: 1. the drawing of the eagle from Rentz's engraving, 2. drawing of the eagle from the design, 3. model of the eagle made to a scale of 1:10 and 1:1, e) gazebo 3D model visualisation, f) completed project



4. Conclusions

The example of the different reconstructions of the same building, prepared on the basis of similar source materials, demonstrates how work methods have evolved and how different the final result can be, in addition to how important it is to maintain restraint and responsibility in the preparation of reconstruction projects. It is essential to not treat earlier graphical hypotheses as equal to sources and to maintain an appropriate distance, particularly when the buildings that are to be reconstructed have not survived or when only a small part of them has survived. The use of reconstructions that were based on erroneous assumptions resembles a vicious circle, where the start is an improper reconstruction of one structure or detail that is used for further comparisons, resulting in subsequent erroneous documentation. Another significant threat is the transfer of poorly thought-out reconstructions to construction projects.

The entire responsibility for the later appropriate use of graphical reconstruction rests with its authors. It is key to properly define what is the documentation of a building, what is a documented hypothesis and what is the author's own design. It would be appropriate for the predominant part of a documentation to be composed of the documentation covering the study of hypotheses, and for the graphical reconstruction itself, to responsibly point to the possibilities of further study and interpretation and be a reliable research tool.

The dynamic development of digital technologies and the evolution of research and design tools leads to changes in work methods, providing architects, conservators and architecture historians with new opportunities and making it possible to recreate the historical appearance of historical structures. This is typically simplified as the final visualisation of the structure, being its attractive presentation, while the fundamental question is the historical fidelity of the reconstruction, which can only be obtained through proper methodology utilising the experiences of scholars from various disciplines. By comparing the three designs in this article, I wanted to direct the readers' attention to the necessity of critically interpreting earlier documents and the possibility of using contemporary research techniques and tools in synergy with traditional methods during the individual stages of the process of the reconstruction of historical space.

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