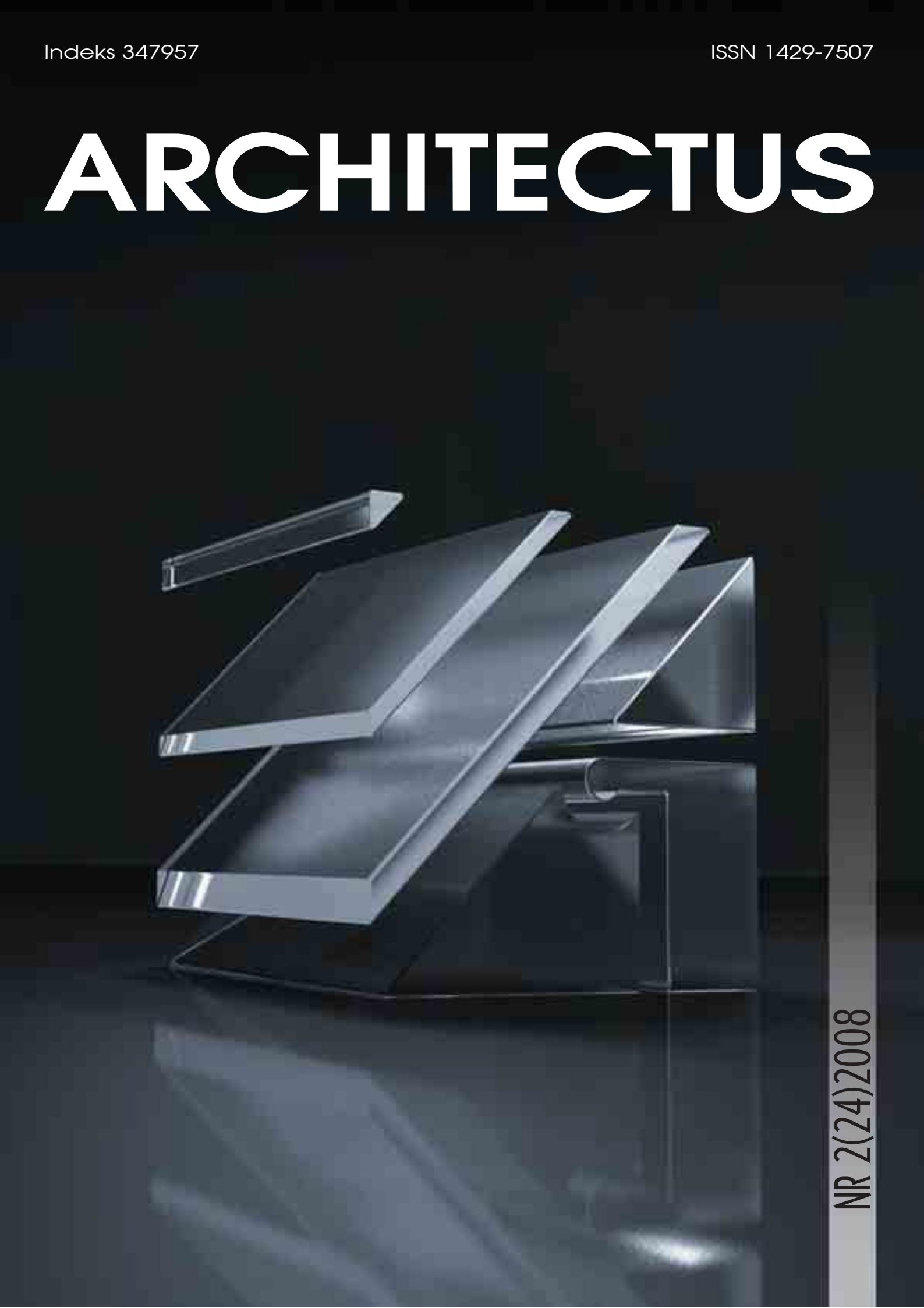
Indeks 347957

ISSN 1429-7507

ARCHITECTUS



NR 2(24)2008

ARCHITECTUS

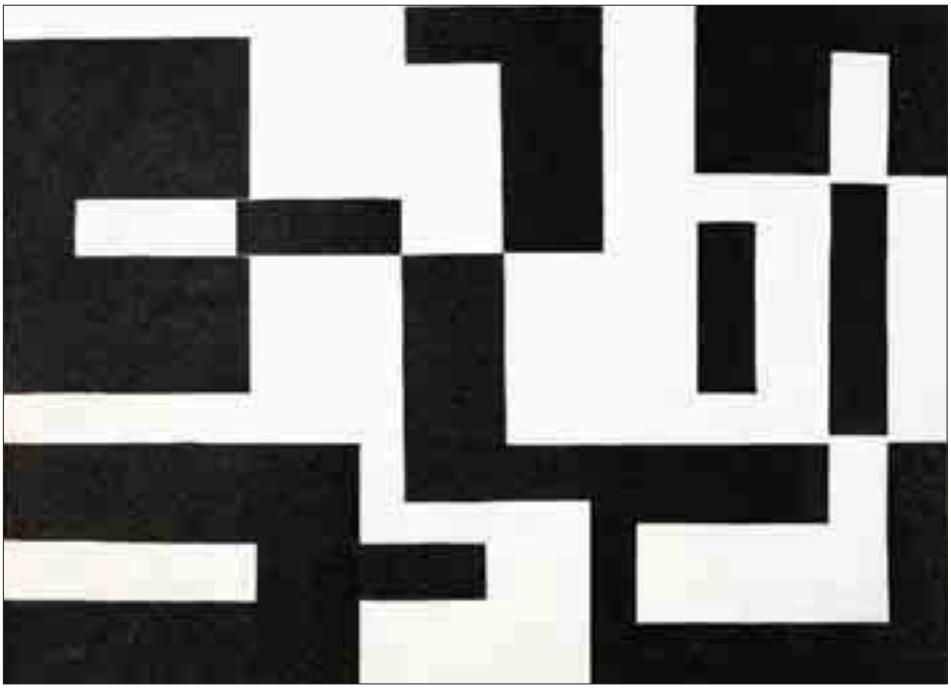
NR 2(24) 2008

Contents

Editorial Office Address

Wydział Architektury Politechniki
Wrocławskiej
ul. Bolesława Prusa 53/55
50-317 Wrocław
tel. 0 71 320 65 39
tel. 0 71 321 24 48

Drukarnia Oficyny Wydawniczej Politechniki Wrocławskiej. Nakład 510 egz.



Drawn by the A. Daszek

Architectus

2008
Nr 2(24)

Editorial

"Architectus" is a scientific journal published since 1997 by the Department of Architecture of the Technical University of Wrocław. The initiator of creating such a periodical was the dean of the Department, Professor Stanisław Medeksza, who in 1996 suggested to Professor Ewa Łużyniecka such an undertaking with her as chief editor. Then, the formula of the journal was created, the title was chosen, and the editorial group under the direction of Doctor Danuta Sowińska was appointed. As a result of a students' contest the graphic get-up of the paper was chosen. The authors were fourth-year student – Artur Błaszczyk and Krzysztof Faleńczyk. Also, the editorial board was appointed: Professors Zbigniew Bać, Edmund Małachowicz, Tadeusz Zipser and Stanisław Medeksza. Doctor's also took part in the editorial work: Magdalena Baborska-Narożny (1999), Maria Starczewska (1999), Andrzej Legendziewicz (1999–2001) and Małgorzata Doroz (2003, 2004).

In the successive numbers of the journal there were articles related to both the theory of contemporary and historical architecture as well as urban planning, the forming of green belts, aesthetics, construction, etc. In the hitherto published paper numbers there have appeared works related to realized architectonic and urban planning projects and also presentations of philosophical views bound with the reception of architecture. Room has been foreseen for the presentation of well known personages of academic and professional life. Also, problems related to education of architecture programs and student life have been discussed.

The articles have been published in conference languages or they end with a summary in the English language. Captions have been translated into English. Translations were made by Marzena Łuczkiewicz.

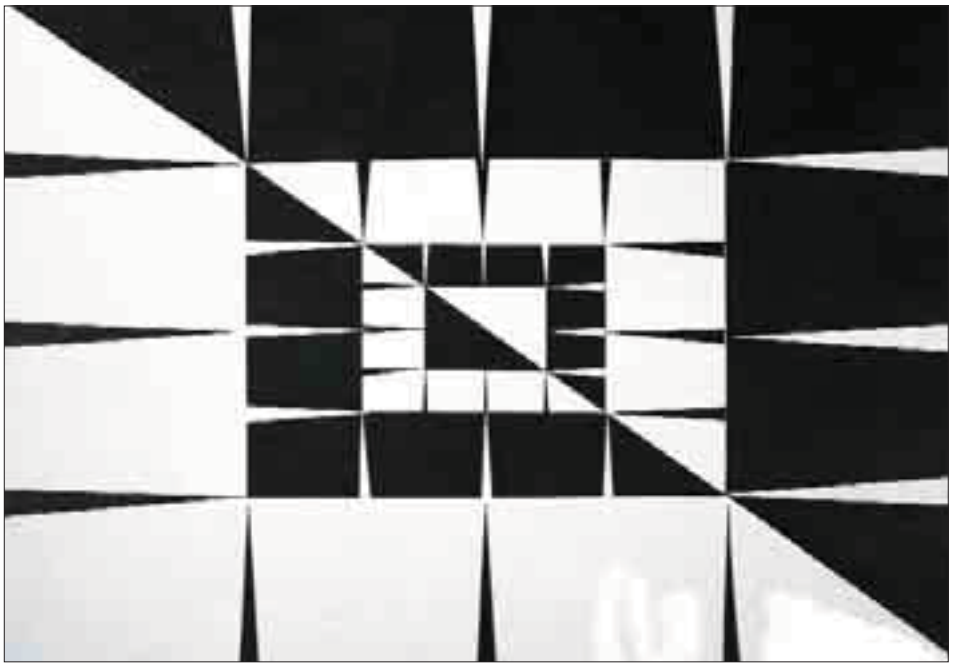
All the articles have been supplemented with a bibliography and often with foot-notes. After acceptance of the journal's number by the editorial board all the articles were reviewed and underwent an editorial and language correction. The periodical soon became an all-Polish journal, and since the year 2000 is presented by the American publishing house of. Penrose Press in the "International Directory of Design" in the section of Architecture, Urban Planning and Landscape Design.

The first change in the editorial board took place in 2000. Professor Zipser and Professor Medeksza stopped working in it and were replaced by Professors Elżbieta Trocka-Leszczyńska and Eugeniusz Bagiński. Since 2003 there are also scientists from outside Wrocław: Professors Andrzej Tomaszewski and Zygmunt Świechowski from Warsaw and Józef Lenartowicz from Cracow.

Patrons of the journal since 2007 are the Polish Academy of Sciences, Wrocław Section, as well as the Polish National Committee of the International Council on Monuments and Sites (ICOMOS) – reports of works of this committee are periodically presented in the journal.

The increasing interest with the paper, especially of scientists from, abroad, has mobilized the editorial office to carry out successive changes. In 2008 scientists from foreign academies have been invited to take part in the work of the editorial board. These are: Professor Tore I. Brandstvein Haugen from Norway (Fakultet for architektur og billedkunst, Norges tekniks-naturvitenskapelige universitet, Trondheim), Professor Joaquim Braizinha from Portugall (Universidade Lusiada de Lisbona) and Professor Vladimir Šlapeta from the Czech Republic (Fakulta architectury VUT, Brno). Also, architects from Wrocław have become members of the board: Assistant Professors Jerzy Charytonowicz, Małgorzata Chorowska, Tomasz Ossowicz and Doctor Ada Kwiatkowska. At this time also Danuta Sowińska, the editor, transmitted her responsibilities to Anna Miecznikowska. The function of secretary of the editorial office was entrusted to Doctor Ewa Cisek, while the technical elaboration of the articles was given to Doctor Dorota Łuczewska.

One of the most essential changes is the undertaking to publish the journal in the English language which at present is the main congress language. This will allow a wider interchange of opinions with architects from abroad. In consequence the editorial office will communicate electronically with regard to correspondence with reviewers and the authors. The journal will still be accessible, as a whole, only in the printed form, while general information and the contents will be found in the internet – the address being: http: //www.arch.pwr.wroc.pl



Drawn by the E. Jakubczyk

Architectus

2008
Nr 2(24)

Bernát Bérczi O. Cist.*

*The ruins and reconstruction of the medieval Cistercian Abbey of Zirc***

Historical context

The Abbey of Zirc, founded by King Béla III, in 1182, flourished until the mid 14th or early 15th century and played a significant role among the Cistercian Abbeys in Hungary. It received several delegations from the Pope and the General Chapter of the Cistercian Order also entrusted to the Cistercian Abbot the management of various official businesses. It is important to note that in the statute-books, the Abbeys of Zirc or Bakony never once appears as having any disciplinary problems.

However, at the begining of the 15th century the Abbey of Zirc, similarly to most of the Cistercian Abbeys in Hungary, must have been in a run-down state. *The monasteries of Hungary… have been corrupted spiritually in many respects and some of them are occupied by force by outsiders who are not members of the Order*[1], wrote the General Chapter in 1411. At that time, there certainly was a convent in Zirc[2], but the charter issued 30 years later reports on impoverishment[3]. The impoverished abbey must have been directed by a commendatory abbot[4] in 1462, but if it was not so at that time, by 1511 the abbey would certainly be run by a commendatory abbot, Miklós Maglódy[5], and it would remain so until its reestablishment. From 1538 Zirc belonged to the Podmaniczkys – another source[6] gives details of its decline at that period – and if there was a monk at Zirc at that time abandon Zirc at latest after the capture of Buda by the Turks in 1541. The village itself was deserted shortly thereafter. By 1549 only four places are recorded as inhabited by serfs.

We do not have any sources concerning the construction of the abbey and neither of the medieval building operations. The archives of Zirc Abbey completely perished in the 16th century, therefore it is only from the above mentioned data that we can make the inference that the buildings of the abbey had started to decay from the 16th century and onwards. After the foundation, certain repairs, perhaps even transformations were made. We can draw this conclusion from a piece of a Gothic bevelled window frame from the 14–15th century[7].

---

* The Cistercian Abbeys in Hungary.

** A presentation at the Catholic University of Péter Pázmány, held on 7th November 2005, at the Conference on the History of the Cistercian Order. It will be included in the study volume to be published on the theme of the Conference.

[1] Josephus Canivez, *Statuta Capitulorum Generalium Ordinis Cisterciensis (1116–1786) IV*, Louvain, 1936. 1411: 31, p. 142–143.

[2] The charter issued on 17th May 1418 mentions "Andrew Cistercian abbot and his convent", therefore we may assume that there is a monastic community and it seems that the abbot is also a member of the order. Magyar Országos Levéltár Dl 43398.

[3] According to a document dated 17th September 1450 at Pécs, if Abbot Peter should not pay back the borrowed 10 forints, the auxiliary bishop would enforce his claim by legal proceedings. J. Koller, *Historia Episcopatus Quinqueecclesiarum*. IV. Pozsony, 1796, p. 336–337.

[4] Peter Nagyváthy Cistercian abbot must have already been a commendatory abbot who appeals to Pope Pius II in 1462 as the abbot of Zirc his commission to be abbot of Bakonybél, resigning from his rights about Zirc. In 1464 he will get himself commissioned again to be the abbot of Zirc of the monastery that has "no more than 20 forints income per annum" (H. Konstantin O. Cist., *Zirc története*. Veszprém, 1930, p. 281. Oklevéltár, 130–032=HK 130–132).

[5] On the 10th October 1513 Jákob, abbot of Cîteaux approves that Miklós Maglódy, commendatory abbot having been commissioned by János Szapolyai in 1511, who wants to become a monk following the general decree of the Parliament issued in 1486 and 1498, would join the Order by the abbot of Heiligenkreuz and so become abbot of Zirc. The abbot of Cîteaux stipulates that he has to "put the monastery right" – Budapest, Eötvös Lóránd Tudományegyetem Könyvtára, Kézirattár, Collectio Hevenesiana Tom. LXXIX p. 389.

[6] Lukinich Imre, *A podmanini Podmaniczky – család oklevéltára*, IV. Budapest, 1942, p. 39–40.

[7] Veszprémi Múzeum Veszprémvölgyi Kőtára, lsz: 255 (73.8.3) Zirc, 1972.

Sources on the construction of the Abbey of Zirc

The first authentic records about the medieval abbey and church come from eyewitnesses in the 17–18th century. The first source mentioning the Abbey of Zirc is the *Celestial Crown* by Pál Eszterházy, published in 1696 that source mentions the devotional pictures of the Holy Virgin[8]. He writes as follows about the Abbey of Zirc:

CLIV. The Picture of Our Miraculous Lady of Zirc in Hungary.

There is a monastery in Zirc, in the Bakony Range, in the County of Veszprém, Hungary that had been built for the Cistercian monks four hundred years ago. Though it was a place where the Holy Virgin had been particularly venerated, it was razed to the ground by the pagan enemy in 1530. Now it is just barren with some walls of that sacred place here or there still standing. The source does not tell us anything about the details concerning the abbey and it also contains some inaccuracies with regard to the date of foundation and its destruction.

The second source comes from the refounders of Heinrichau. In 1699, before taking over the abbey of Zirc and its estates, the abbot of Heinrichau, Kalert Heinrich commissioned the monk Abraham Wabrzig with the inspection of Zirc and its properties and the survey of its economic potentials. He writes his report to his abbot in Wien on 17th October 1699 in which he describes the church as well as the abbey in detail, comparing it to the church of the Cistercian abbey of Heinrichau and to the neighbouring one of Rauden (Rudy). We quote the most important excerpts from that letter[9].

The monastery of Zirc is mostly in ruins. Its church is built of carved stone. The arches, windows and columns are also made of chiselled, still undamaged stones. It is cruciform as the church of Heinrichau with the exception that [...] *the sanctuary is exactly the same width but not as long as in Heinrichau, and there are no side-aisles next to the sanctuary that would enable one to perambulate, however, continuing from both sides of the sanctuary there are two fairly wide chapels with a wall between them. Up to now, all four are still vaulted. Similarly to the church of Rauden, in other parts of the church at Zirc, continuing from the choir there are side-aisles and high arches, just as in Heinrichau. In its front, next to the high altar there are no side-corridors and as in Rauden next to the sanctuary there is one chapel*. [In Zirc, there are two neighbouring chapels separated by a wall.][10]...

The walls built on its middle columns still stand and the lateral ones up to the roof of the above mentioned church although there is no roof one could easily top it as the wall is as high as it was when covered with a roof. The walls are intact without any cracking of the carved stones, from the high altar to the third bay of the back part of the church as, for example in our church to the stairs of the pulpit[11]. All the windows have the same shape as the new windows of the church of Heinrichau that are built from the pulpit[12]. There is an enormous, beautiful window made of yet intact stones behind the high altar[13]. The vestry is nice, wide and long, its walls are still standing. The lateral walls of the dormitory and the separation walls of the lower floor... are all still intact, however the upper floor, namely the dormitory is half ruined from the middle of the cell's window. The other part of the dormitory has intact windows... but all the vaulting has fallen down, including all the corridors that had been arched. All the walls and the façade of the refectory are still intact but its vaulting has already fallen down. The length of the vestry, the dormitory and the refectory built southward, as in Heinrichau[14], is the same as in Heinrichau from the church to the refectory inclusive[15].

The following written memento dates from about 1729 subsequent to the move from Pápa to Zirc, to their temporary residence – called Bagolyvár – of the three Cictercian priests who were involved first-hand in the reestablishment in 1726. They soon started to compile the handwritten book listing in detail the estates and abandoned lands of the Abbey of Zirc, named after the Blessed Virgin, in order that *the newly arriving monks might be informed*, as they say in the foreword. The quotation

---

[8] Eszterházy Pál, Mennyei korona az az Az egész Világon lévő Csudálatos Boldogasszony Szűz Képeinek röviden föl tett Eredeti…, Nagyszombat, 1696. p. 127 (no. CLIV).

[9] The letter of Abraham Wabrzig to his abbot on the 17th October 1699. Heinrich Grüger: 'Der Beginn der Union von Heinrichau und Zirc (1701–1752)' Analecta Cisterciensia. 38 (1982) p. 68. (The original can be found at Breslau/Wrocław Diocesian Archive V-B-6c.)

[10] The author (Abraham Wabrzig) himself repeats what had been witten about the chapel. The plan designed by Tibor Hümpfner that we have sketched above proved to be correct with regard to the side-chapels albeit he could not find the foundation walls of the chapel.

[11] In the church of Heinrichau, the pulpit is in the nave on the third left pier counting westward from the transept. The altar-piece of Olaszfalu that we will detail below also depicts intact to this third pier the medieval church of Zirc. See the plan of Heinrichau, Figure 1.

[12] The above mentionned window-frames dating from the 14–15th century could have been in the church. See Note 7.

[13] We assume that "the enormous, beautiful window" refers to the six metre high rose window, reviewed below, found in fragmentary state in 2005.

[14] It appears to us from the source that the refectory in Zirc was also situated in the southern end of the eastern wing. See the plan of Heinrichau. Figure 1.

[15] In Heinrichau the distance from the vestry to the summer refectory is 43.2 m (namely the eastern corridor of the cloister) while in Zirc the length of the vestry, the dormitory and the refectory is 43.9 (according to the text it is the whole eastern wing.) – E. Łużyniecka, *Architektura klasztorów cysterskich*, Wrocław, 2002, p. 462. made by the plan of Heinrichau and by the plan of Zirc of Tibor Hümpfner.

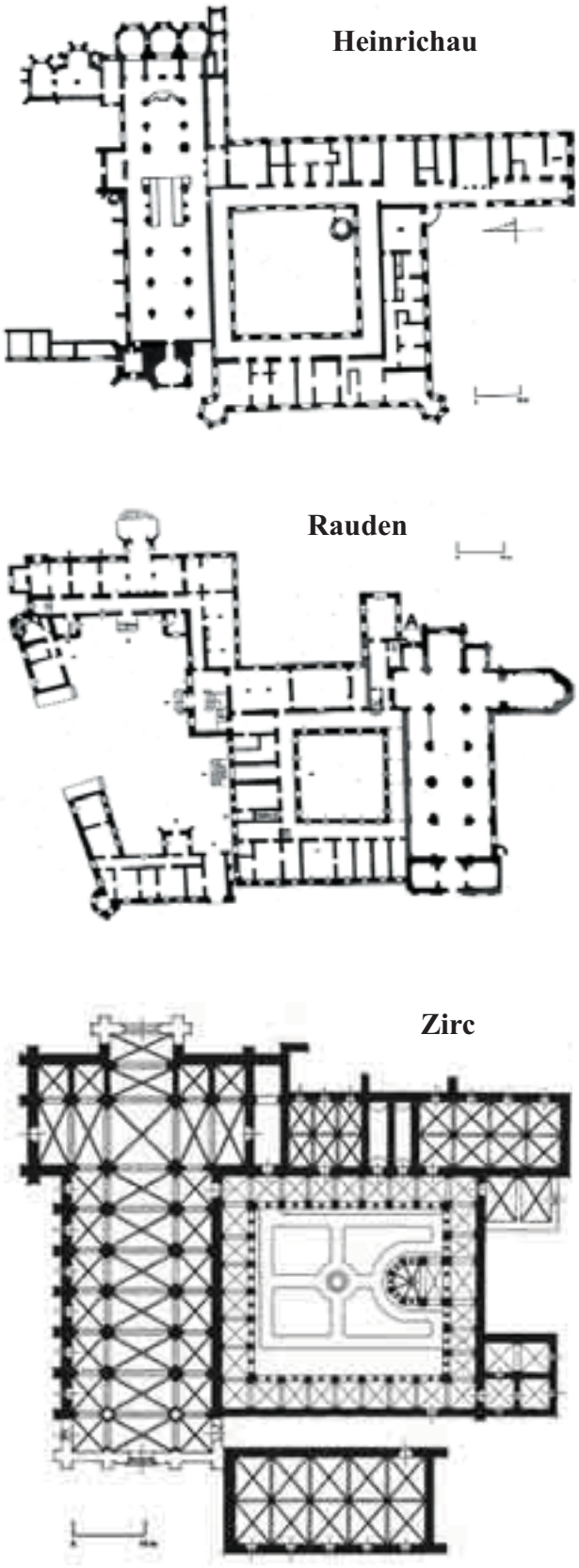


Fig. 1. The plans of the three abbeys with identical measurements, included in the report[16] of 1699

below comes from the description of the estates and the comments relating to them[17]:

[Zircz – p. 65] *There remained standing, nevertheless, the tall ruins of the once magnificent Basilica, which are awesome even today, together with the ruins of one wing of the abandoned monastery. The foundation documents of the Abbey of Zirc have been lost, together with all the other documents. They diligently (instituted a search) at the archives of the Chamber of Pozsony, but found nothing. ...* [Annotationes – p. 66:] *N. 1o At one time there were two churches at Zirc: one more festive, that of the monastery, the other* [p. 67:] *rustic, by the side of which, as far as one can see from the ruins, the rectory building stood. We know nothing today of the patron saints of these churches. Márton T. Szentiványi, the Jesuit historian says that at one time there was a miraculous picture at Zirc, but one cannot tell where it originated from. In the church of the monastery two chapels have been cleaned and a shingled roof put over them, at the place where mass used to be celebrated under the open sky; before Zirc became a village, our priests used to spend the night there and, in place of the brothers' singing of the psalms in the choir loft, they heard the howl of the wolves close by.*

In the larger church and the monastery here and there a number of holes can be found where the swineherd and other wretched sons of the mammon sought treasure, and they threw stones into the sanctuary behind the ruined altar through the larger round window, and they sometimes got frightened and stopped their activities when the moks in their habits appeared like (some) spirits.

This quotation places before us the same picture as that written 30 years earlier by Abraham Wabrzig: some parts of the church are still standing, including the eastern wing of the monastery, furthermore it specifies the presence of the rose window on the sanctuary wall.

The fourth source can be found in the work of Mátyás Bél concerning Veszprém County. Shortly before 1735, Mátyás Bél surveyed Zirc himself, not only the ruins of the medieval abbey but also the village of Zirc and the new abbey which was under construction[18]. He speaks briefly about the construction of the medieval abbey: *The building of the church was cruciform; all was built of ashlars made of rock beautifully interspersed with chiselled windows, gates and columns. It is a huge, magnificient building from all sides.* [...] *The whole was surrounded by a three-mile long wall…*

The fifth source comes from the first monks of the reestablished abbey from 1738. It is preserved in the *Historia domus* of the abbey[19]: *From time to time you can hear some rumours widespread in all Pannonia about the ancient ruins (that) are partly from the*

[16] The layouts of Heinrichau and Rauden are taken from the book of E. Łużyniecka, *Architektura klasztorów cysterskich*, Wrocław, 2002.

[17] Specifica enumeratio possessionum et desertorum praediorum abbatiae B.M.V. de Zirc appertinentum Zirc. 65–67. c. 1729, New Library of the Abbey of Zirc.

[18] M. Bél, *Veszprém Vármegye Leírása*. [In:] *Publications of the Veszprém Megyei Levéltár. 6*. Ed.: L. Madarász. Veszprém, 1989. p. 53–55.

[19] *Historia domus*, p. 43. (1738), New Library of the Abbey of Zirc.

Fig. 2. Detail from the bottom left part of the high altar-piece of the Roman Catholic church of Olaszfalu

monastery, mainly from the church in Zirc. (And they show) as I could see myself that it was not just a whatever artifact but it was really worthy of a king. But something that long-ago people once liked is not appreciated by present-day people. Though in the past it was a royal artefact, due to cruel storms, to the length of time that has past and to the corrosive effect of the air, and mostly to the enemy that has set it on fire, the monastery and the church have been ruined to such an extent that they were not like a royal ornament but like a beggar's rags.

At the moment of my writing, the new monastery has already been built out of the old one and the same intention was kept in mind (this time as well), namely that the new church should be made out of the old ruins. As we can see from the previous description, the foundation-stone has been laid and the remaining ruins have been demolished one after the other. The last and most beautiful part of the façade was blasted on December 19th this year.

On this façade the window looked to be intact and very artistic but the weather has worn it very much[20]*. Its parts could not have been used for any other buildings.*

The sixth written source on the medieval Abbey of Zirc can be found in the second edition of Topographia magni regni Hungariae (1750) by Father Bonbardius SJ and Father Trsztyánszki SJ. It tells us less than the description by Mátyás Bél[21].

Chronologically the last record which does not have full source value is the high altar-piece of the Roman Catholic Church of Olaszfalu[22]. In the lower left corner the presumed ruins of Zirc Abbey can be seen together with two Cistercian monks. The ruins on the high altar-piece show us a Latin cross church with basilican layout and the eastern wing of the Abbey in ruins. It completely agrees with the above mentioned account of Abraham Wabrzig concerning its building and the designed items[23]. Yet, the artist used his artistic freedom: he did not make a precise plan but a painting, therefore the piers and some other items are schematic. The name of the painter and the date of the painting are unknown. According to Mária Aggházy the painter may have been Bernhard Krause and the painting date from ca. 1770[24]. We know that Krause has painted several pieces for Heinrichau[25]. and we can find some more paintings by him in other churches founded by the Abbey of Zirc. However, Krause himself could not have seen the ruins. At his birth, in 1743 they were no longer standing. Presumably he might have made that portion of the painting based on some other painting or drawing, if it was painted by Krause at all[26].

[20] The text may leave us in doubt as to whether the eastern or western façade of the church was demolished last. But we see in the previous source that the western part of the church was in a bad state, or did not stand at all, and the "beautiful window" in both sources is similarly standing. Therefore we must regard the façade holding the "very artistic window" in the description dated 1738, also based on the contents of the previous source, as being "that behind the main altar".

[21] P. Michael Bonbardius SJ, and P. Joannes Bapt. Trsztyánszki: *Topographia magni regni Hungariae*, 2. ed. Vienna, 1750. p. 140–141.

[22] The parish established and still looked after by the Cistercians in the neighbourhood of Zirc.

[23] It shows the first three bays of the sanctuary, the transept and the nave to be intact. The great rose window however dimly can be discovered on the sanctuary wall. We have to note that in the picture to the left (and to the right as well?) from the sanctuary wall the dark marks of a reparation done possibly in the course of the 19th century can be discovered.

[24] Mária Aggházy: *A Zirci Apátság templomépítkezései a XVIII. században*. Veszprém, 1937, p. 86.

[25] In Heinrichau, the bills paid for Krause have been found.

[26] It raises a question whether the "original painter" whoever he was could have seen the ruins or he painted only on the basis of narration. This latter might give an explanation for schematization.

Excavation lead by Tibor Hümpfner, Cistercian, in 1912–1913[27]

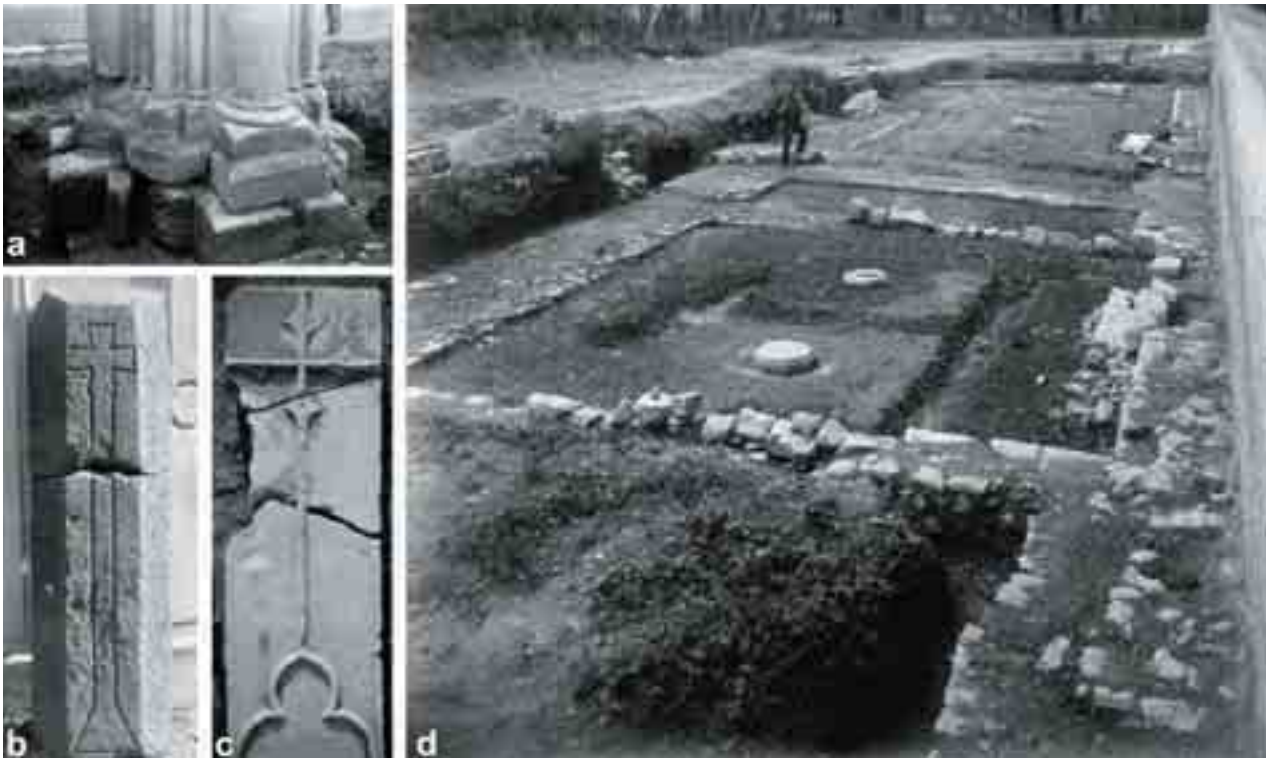


Fig. 3. The excavation of 1912–1913. a) the pier by the main road 82, before restoration; b) gravestone found at the entrance of the chapter house; c) gravestone found at porta monachorum; d) the excavation of the eastern wing

By the 20th century the build-up and the layout of the ancient monastery had sunk into oblivion. At the beginning of his abbotship, Remig Békefi had given his permission for Father Tibor Hümpfner to start an excavation in order to establish the layout of the medieval church and abbey. He initiated the excavation in February 1912 with six workers. He supposed that the only pier left for reminiscence in the 18th century stood at its original place. Thus, first he looked for the wall of the southern side-aisle, then following this he arrived at the transept. On the continuation of the transept, the chapter house was found, and soon a chiselled column base was discovered. Thus, their assumption was verified: the pier stood at its original place. Those people who at the beginning were doubtful about the excavation, gladly started to go to see it too. From the eastern wing of the cloister a door opened to the church. In front of this, a fine recumbent gravestone without inscription was found. Deep underneath there was an intact skeleton too. In front of the entrance of the chapter house, also in the cloister, another fine gravestone was found: one with a convex finely chiselled Gothic cross without inscription. During the excavation several smaller or bigger chiselled stone fragment were found. The chapter house and the community room[28] have been completely excavated. The width of the chapter house helped to establish the width of the transept and the nave, therefore the layout of the medieval church could be established. Instead of the foundation wall of the sanctuary, on the rocky grounds mortar patches were found[29]. The foundations of the pier at the junction of the nave and the transept, furthermore the ones of a pair of piers situated to the south from this, were found. The foundation wall of the western façade was not found, so the church is imagined to be seven-vaulted, relying on the place of the western wing and on analogy[30].

In the wing of the lay brothers, by April the cellar was also excavated, more precisely its corners deep underneath and the foundation of its piers[31]. Only the western and eastern foundation walls of the southern wing were found.

[27] Tibor Hümpfner O. Cist.: *A zirci apátsági templom ásatása (1912–13).* [In:] *A Veszprém Megyei Múzeumok Közleménye II.* Veszprém, 1964, p. 119–140.

[28] According to the above mentioned source from 1699, this room served as a refectory, in agreement with Tibor Hümpfner's supposition that in the southern wing "the refectory had not been built": *l.c.* p. 131. Hümpfner did not know about the 1699 report.

[29] Though the exact place of the sanctuary wall is unknown, we may suppose that Tibor Hümpfner drew correctly on his layout the place of the sanctuary wall following the available signs and the principle of proportions. Today a modern excavation could shed light on this, as the mortar marks on the rocky substratum could give an explanation for this. More information can be drawn from the above mentioned source from 1699 saying that "the sanctuary is as wide but not as long as the one in Heinrichau" – thus it must have been made of less than three bays, making comparison with Heinrichau.

[30] It is interesting to note that in 1930, Konstantin Horváth O. Cist. in his book about the history of Zirc (p. 4) describes the medieval church to be six-quarreled.

[31] Though the refectory of the lay brothers was not found in the southern continuation of the cellar (ibidem, p. 136), it features on the layout drawn by Hümpfner.

There was no trace of the refectory[32]. Relying on the general principles of Cistercian architecture, the corners of the cloister were also found. They did not have to look for the well as it had been known for a long time that the well on the site is of medieval origin. Around it, the hexagonal foundation walls of the well house were found[33].

Thus, on the basis of the excavation in 1912, in the spring of 1913, Remig Békefi, Abbot of Zirc commissioned Dr Oszkár Fritz, private teacher at the Polytechnic, to prepare the technical drawing[34] of the excavated foundation walls and the chiselled stone fragments. Applying them to the Cistercian construction customs, Tibor Hümpfner drew the probable layout of the medieval abbey.

[32] Nevertheless, it features on the layout drawn by Hümpfner.

[33] Ibidem, p.137. – It is a pity that on the excavation plan the foundation walls of the well are not marked.

[34] These plans – or perhaps only those parts of them that can be found in the quoted works of Tibor Hümpfner – can be found in the Archaeological Data Store of the Veszprémi Laczkó Dezső Muzeum.

The history of the excavated ruins since 1912

Further excavation and conservation did not take place, because the First World War and the ensuing difficult conditions in the country put a stop to any further researches. Then Abbot Remig Békefi, the initiator of the history writing of the Order in this country, died in 1924. The excavated sections were all buried, excepting the eastern wing.

In 1944 the young entrants to the Order cleaned down the ruins that were left uncovered. In 1950 when the monastery was disbanded, the excavation area was

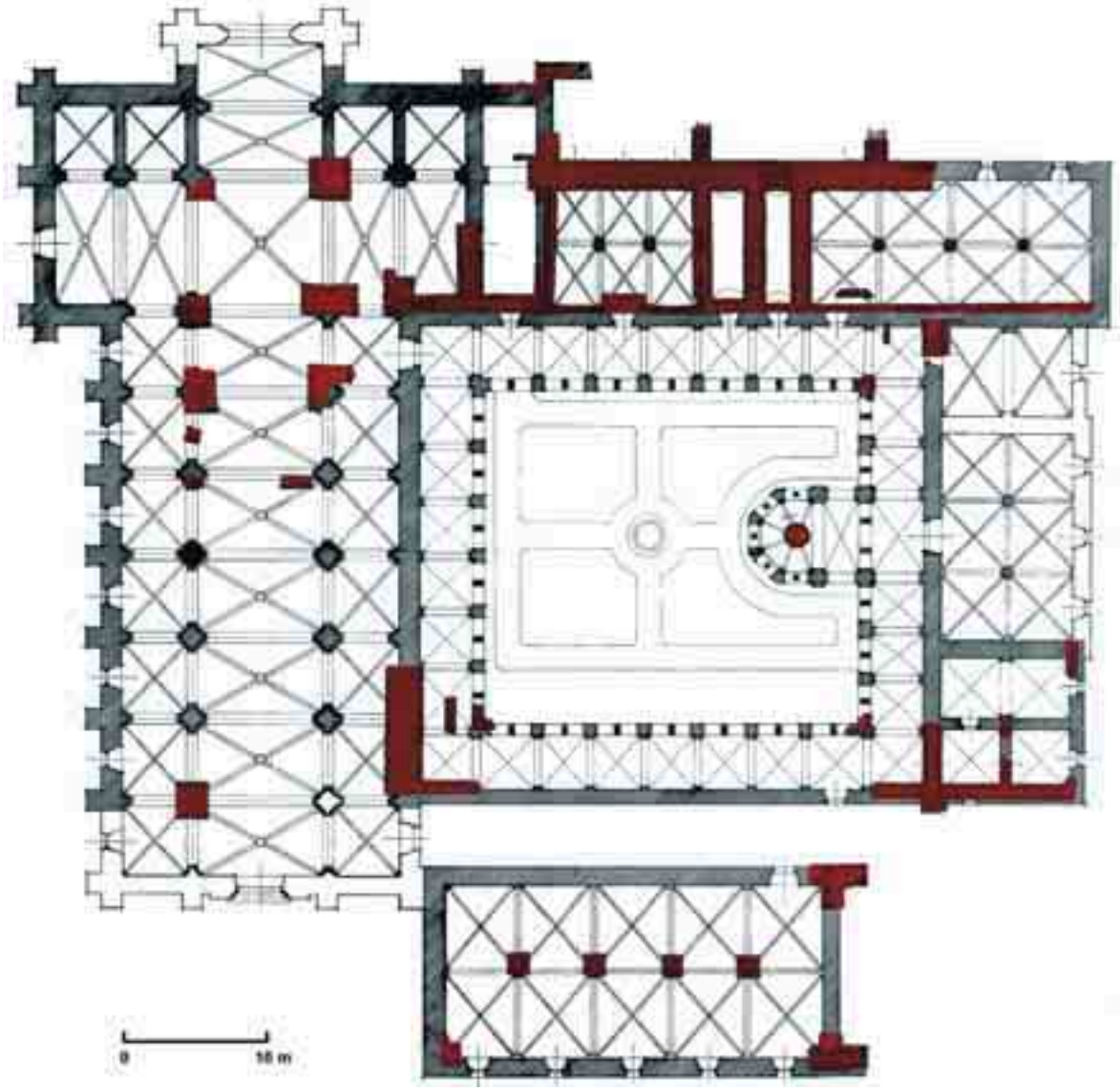


Fig. 4. An adapted version of the plans drawn by Tibor Hümpfner. The excavated portions are coloured dark. The white areas, without specific finds, are presumed

abandoned, neither the Natural Science Museum of Bakony, nor the arboratum were interested in it. This is what Sándor Tóth[35] complains about in 1963. In 1958 for the Bakony Weeks, the 100th anniversary of the death of Antal Reguly, on the initiative of Antal Békefi, the outstanding song and music teacher and researcher of traditional music, D. Csaba Veress, and Ferenc Illés, local supervisor of adult education, organised the tidying up of the ruins: they arranged a "stone exhibition" and provided explanatory boards for it.

After 1963 – probably on the basis of the report of Sándor Tóth – part of the stones from the ruins – those easier to move – were taken to the stone storage of Tihany[36]. The two gravestones, a chiselled corbel, a half pier base and capital, can be found there today. The upper part of the 17th century gravestone could have been lost at that time. The smaller stone carvings were taken to the stone collection of the Laczkó Dezső Museum of Veszprém.

After 1958 the excavation area became abandoned for twenty years. During the school year of 1978–79 the secondary school teacher, Steven Szűcs and his pupils tidied up the area cutting out shrubs, trees, replacing loose stones. Besides the maintenance of the ruins, they undertook serious research work and made a maquette of the medieval monastery in two possible formats[37]. In 1982, being the 800th anniversary of the Abbey of Zirc, they carried out further cleaning work. There were plans for displaying the ruins in a proper, worthy manner, but these could not be achieved because of lack of funds.

Following some 20 years of neglect, in 2003 the young Cistercian monks carried out the maintenance work of the excavation area, the last time. They cut out overgrown trees, sprawling shrubs, and removed the rubbish. But the excavation area – even though it is cleaned up – is exposed to the vicissitudes of the weather without the necessary protection and conservation work having been done over a period of nearly 100 years.

[35] Veszprémi Laczkó Dezső Múzeum, Archaeological Data Store No. 8809.

[36] S. Palágyi – Sándor Tóth, *A római és középkori kőtár katalógusa*, Veszprém, 1976. no. 44–48.

[37] The results of the research work are presented in: I. Szűcs, *Zirc középkori udvarháza és ciszterci monostora*, Veszprém, 1944, and of further works in 1978/79 written in: I. Szűcs, *Tisztelet a hajdankori mestereknek. Munkaleírás egy helytörténeti kutatásról*, Rajztanítás. 1980 (22) 1. szám 1–5.

Excavations around the medieval Abbey after 1950

The place of the medieval Abbey church is almost precisely divided lengthwise to west/east by a stone wall. Within the wall is the yard of the Abbey, beyond the wall is Köztársaság Street along which the main road No. 82 runs between Veszprém and Győr. During the spring and summer of 1952 while laying pipes for the water supply on the southern side of the main road No. 82, some 15 metres west of the currently standing pier, the trench dig-

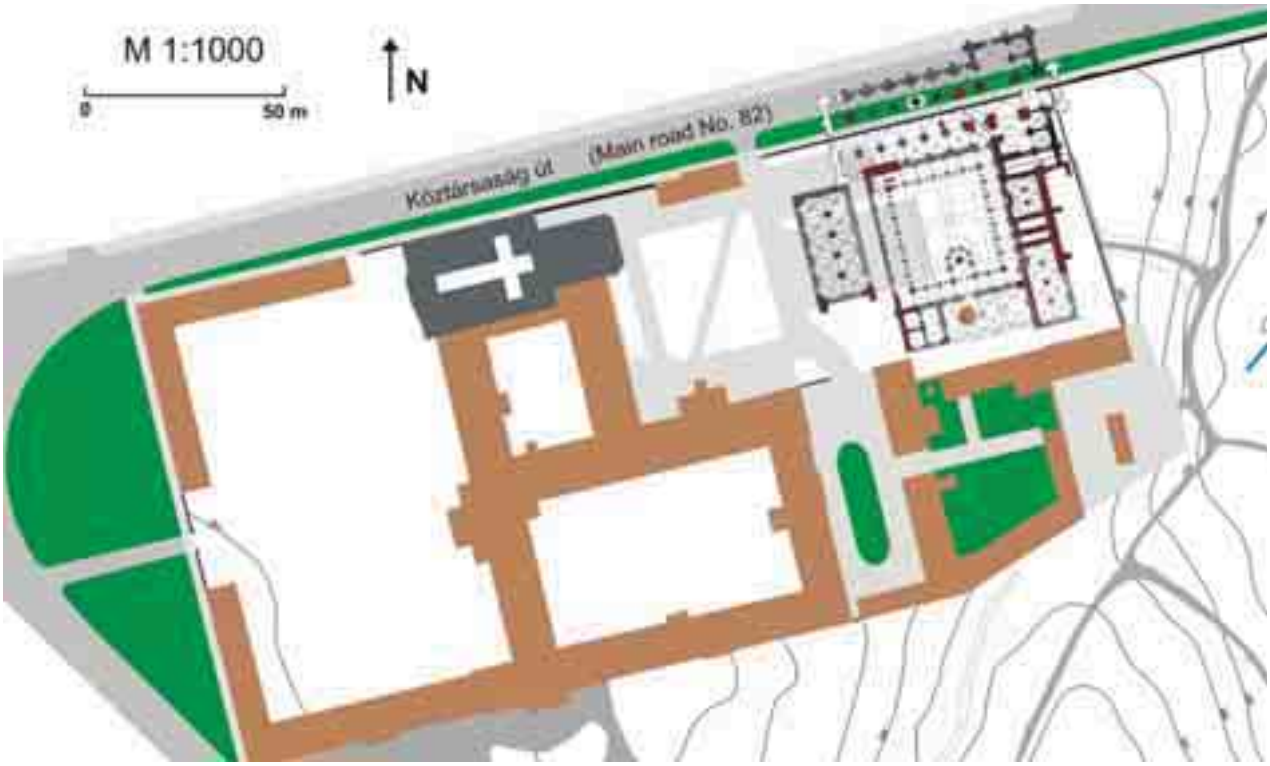


Fig. 5. The environment of the medieval and the current Abbey

gers[38] broke through a foundation wall about 2 m thick and 1 m high – according to the account of the archaeologist Miklós Héjj – "the marks of the church's western outer foundation wall". If we accept that in 1952 they discovered the bases of the western outer wall – that Hümpfner could not find in 1912 – then we must imagine the church having only six bays, but then the street of lay brothers would lead into the open and not into the church. This is unusual but not impossible. Miklós Héjj in 1952 may not have known of Hümpfner's discoveries of 1912, the results of which were published in 1964. It is possible that they discovered the foundations of the last northwestern pier, if only a 2×2 metres section of it was seen, or, in the event of a continuous foundation wall, a section of the underground strip between the foundation of the piers. The question cannot be solved at present – perhaps Miklós Héjj himself had made a hasty judgement – so on the revised plans of Hümpfner I have marked it as possible – just as Hümpfner himself had done – on the western façade beyond the seventh bay.

During the above mentioned excavations on a 15–20 metre section the foundations of the northern wall of the church were also found. At the northern side-isle under the ground floor they found graves with sceletons and a red marble column capital about 20 cm high, but this was broken to pieces the following night by unknown persons, and so the workers buried it in the ditch later.

The laying of the watersupply pipes was continued in 1954 at the place of the northern side-isle of the medieval church, and onward in a line east of the currently standing pier. Here they discovered new graves and the exceedingly massive wall[39] that Tibor Hümpfner knew. The walls continued under the road even at a depth of 2 m.

The following finds of 1972 did not come from the immediate vicinity of the Abbey grounds, but during the dismantling of the forrester's house[40]. These stones that originate from the old monastery can also be found in the stone storage depot of the Valley of Veszprém.

The last time that excavations around the medieval church took place was 1996 when gas supply pipes were laid[41]. The northern side of the main road No. 82, and on its south side immediately east of the pier, a 45 metre length of the grassy strip between the main road and the pavement were opened up. On the south side of the road, about 7 and 12 metres east of the pier, those foundation walls were discovered which had been seen in 1912 and 1954. On the north side they thought that they had found the continuation of the wall that is 12 metres from the pier. On the south side of the main road, beside the wall of the arboratum, they dug up the entire length of the pavement and human bones were found at 37, 40 and 45 metre distances. According to this the graveyard of the monks was east of the sanctuary of the church. At a distance of 14.5 metres from the pier a 100×60×30 cm large white carved limestone block was found. This was taken to Felsőőrs, to the stone repository of the Dezső Laczkó Museum of Veszprém.

[38] Veszprémi Laczkó Dezső Múzeum, Régészeti Adattár, no. 8806. Archaeological report of Miklós Héjj.

[39] Veszprémi Laczkó Dezső Múzeum, Régészeti Adattár, no. 8807. Archaeological report by Dr Ákos Kiss.

[40] Veszprémi Laczkó Dezső Múzeum, Régészeti Adattár, no. 15810 (8805). Archaeological report Sylvia Palágy.

[41] Veszprémi Laczkó Dezső Múzeum, Régészeti Adattár, no. 18861–18897 and 18861–18899. Arch. Report of Pál Rainer.

The most recent finds

At the beginning of the 1990s during a walk-around, two smaller fragments were found at a house in Zirc. These were taken to the Archaeological Institute of the Eötvös Loránd University of Science. As promised, these should find their way into the stone repository of Zirc when it is established. During the last year these were returned to Zirc and placed into the stone storage room of the monastery.

In 1995 on the first floor of the Abbey building, which was built prior to 1735, during alterations, chiselled stones from the medieval monastery were found.

In 1996 we opened a door into the cloister at the south-west corner of the present Abbey church. Several carved stone pieces were found during the breaking up of the wall. In the Baroque wall carved stones were embedded in mortar between two brick walls. At the opened up base of the church wall to about a 70 cm height we found chiselled stones and ashlars that were turned inward. Most important among the finds are: a fragment of the pier abacus of the medieval church, stringcourse and arches.

In the summer of 2004 in the area of the arboratum, about 35 metres east-south/east of the eastern wing of the medieval monastery, during the laying of sewerage pipes a fragment of the outer crocket stringcourse was found. Based on the place and form of the discovery, it is probable that it was a part of the south façade of the eastern wing of the monastery. This construction piece weighed several hundred kilograms. Furthermore, the building layer from the 12–13th century and debris from the work of chiselling was also found.

Early in September 2005 town residents reported to the Abbey as well as to the Cultural Heritage Protection Office that some 40–50 pieces of chiselled stone were found during demolition of a building[42] that stood at the inner corner of the bend of the main road No. 82 heading

[42] This building is presumed to be the mill about which Konstantin Horváth writes at the place marked below ("in 1728 below the ruins of the old monastery") and the hand-written map of Zirc of 1766 also marks it. – Horváth Konstantin O. Cist., op. cit., 169–172. – The map can be found in the Veszprém Megyei Levéltár VeML T no. 112.

Fig. 6. The fragments of the rose window found in September 2005: a) the hub of the rose window b) the outer frame of the window

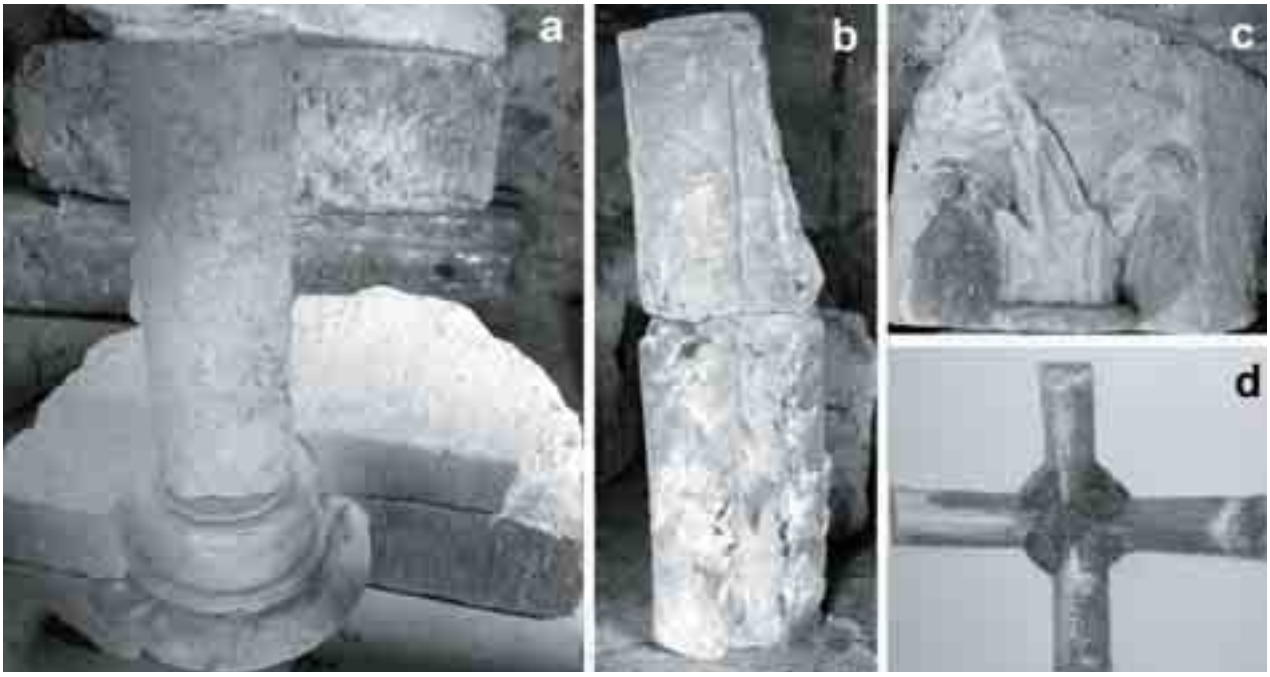


Fig. 7. The stone fragments found in September 2005: a) column ring, b) rib vault,
c) column capital, d) vault boss built into the wall of the cloister of the 18th Baroque Abbey

to Győr, and which once belonged to the Abbey, built by it around 1728 and 1766 and which was reconstructed several times. The investor had not informed the authorities[43]! The salvaging of the finds was and is being carried out by the Archaeological Control, Veszprém, of the Cultural Heritage Protection Office[44]. The chiselled stones found originate from the medieval abbey church, and were placed into the walls of the Baroque building during the beginning and the middle of the 18th century. The cataloguing of the find and their architectural interpretation are expected later, only the

[43] The renovators of the abbey church noticed the chiselled stones, they brought these to the attention of the abbey and they in turn informed the KÖH. Had the renovators not done this, perhaps these precious stones might have become buried forever.

[44] Excavations are also taking place now not far from the building, around it and inside the building geophisical survey is being done, because on the basis of the information gained from Konstantin Horváth there is doubt that the building was erected on the spot "where hundreds of years earlier (that is in the Middle Ages) a mill" stood.

most important pieces have been assessed to date. The most significant fragments found are the outer frame and hub (boss) of a wheel window about 6 metres in diameter, to which the spokes had joined. I assume this is the rose window mentioned in 1699 by Abraham Wabrzig in his report; of which about 1729 the returned monks write; and about which the Abbey's Historia domus speaks[45].

Some further important fragments: two crocket capitals, several fragments of rib vault, corner column ring, fragment of the outer crocket stringcourse.

[45] The writer of the diary in 1738 on the demolition of the rose window of the eastern façade commented: "parts of it could not be used for any building whatever". That is why it was rebuilt many times, in the Baroque era, for the last time in 1766. (The round cut stones are difficult to use in building. Those pieces found had been truncated and bricks supplemented to be able to fit them into the wall.)

The reconstruction of the medieval Abbey church of Zirc

The computerized reconstruction of the medieval abbey, primarily the church, was raised in 2003, following the tidying up of the excavation area. Its implementation started in 2004 with the assistance of Csaba Benkő a graphic architect and visual artist. It was based on the reconstruction plans of Tibor Hümpfner, with small adjustments that were made necessary by the finds discovered later. These same technical drawings of Hümpfner were used to start the shaping of the interior of the church. Thereafter the interior was developed by the help of analogues, among which Orval played an important part, because of the preserved pier at Zirc, the closeness of the time of building, and the great similarity due to their affiliation. We also noted the above mentioned main altar picture of Olaszfalu to help us imagine, with the use of analogues, the bays of the transept and the sanctuary. Aided by these details the church could be reconstructed, apart from the east and west façade.

The exceedingly significant finds that surfaced in September 2005 were a great help in the reconstruction. This happened when two important pieces of the rose window were found, so it was possible to construct the window, although the missing parts could be replaced only by analogues. Those fragments found at Zirc originate in the eastern outer wall of the sanctuary, according to the sources quoted. It is true that outer walls with such a large rose window were not a common practice in Cictercian building, at the same time we can find examples at the Italian San Galgano and Arabona Cictercian abbey churches[46] built in almost an identical period. Similar wheel windows, albeit in the western façade, can be found not far from Arabona, also in Italy, at Fossanova and Valvisciolo abbey churches, built at the turn of the 12–13th centuries. A wheel window, almost identical to that at Arabona, can be found in northern Italy at Vercell, in the Sant Andrea Benedictine abbey church[47], in the outer wall of the sanctuary as well as in the western façade.

However, it is not necessary to travel to Italy for an analogue, as one can be found 40 kms from Zirc at a Benedictine abbey church with a straight outer wall

[46] San Galgano of Casamari was founded in 1201. Its church was consecrated in around 1218. The rose window mentioned does not have its inner segments any more. Arabona was founded in 1209 from Tre Fontane. In the rose window the spokes structure can be seen today.

[47] Cardinal Guala Bicchieri built it between 1219 and 1227. In the abbey and equally in the church French Burgundy influence shows. In some parts Cistercian influence can also be found.

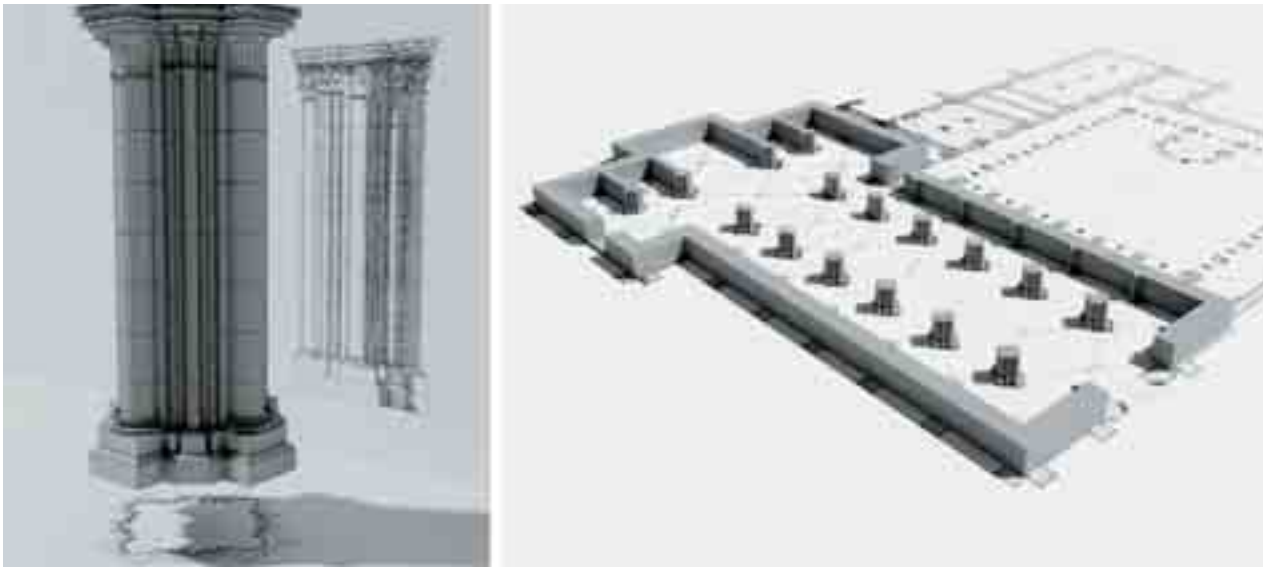


Fig. 8. The computerized reconstruction of the medieval Abbey church

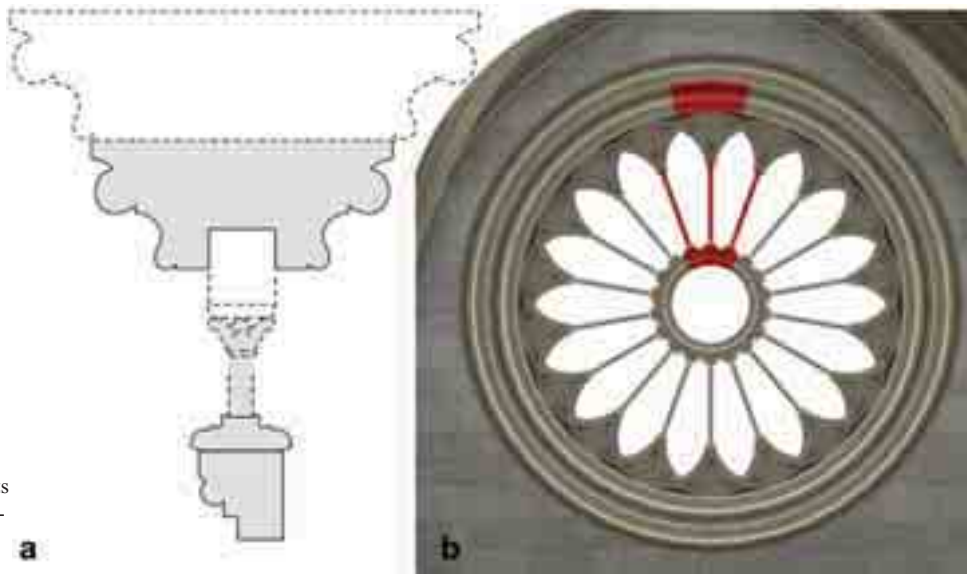


Fig. 9. Reconstruction of the wheel window: a) profile of the wheel window (the work of Balázs Bodó), b) the computerized reconstruction of the wheel window (the work of Csaba Benkő)

Fig. 10. Rose windows similar in proportions and execution to that in the outer wall of the sanctuary at Zirc: a) Arabona, b) Pannonhalma (photo: Arabona – Leonardo Mazzaschi, 2004; Pannonhalma – Gábor Hegyi [in:] *Katolikus templomok Magyarországon*, Budpest, 1991. Szerk. Erzsébet Déri. 76)

and a large rose window with three simple windows under it – maybe due to Cictercian influence. The analogue is Pannonhalma. The large circular window of the sanctuary is about 4 metres in diameter, and this, in relation to the width of the sanctuary, is almost identical[48] with the rose window of Zirc, looking at its proportions. It is true that at Pannonhalma in this circular window the spokes are no longer there, but in 1995 during the renovation of the façade, in the outer rim of the circular window a groove was discovered[49] required for the insertion of tracery. Thus it is not unimaginable to find such a large rose window on the façade of the sanctuary at Zirc.

In the reconstruction of the church there are further details that can be imagined only conditionally, on the basis of analogues, for example the western façade is merely guesswork because no relic whatever has remained of it. We will start the reconstruction of the abbey buildings according to plans next year. When our work with the stone fragments is completed, we hope that will give us further points of reference to help in the reconstruction. At the same time there are several questions in which the entire excavation could reveal the direction. Up to date information is available at http://www.ocist.hu/zircz/.

[48] At Pannonhalma the circular window measures about 60% of the width of the sanctuary, at Zirc 65–70% (taking into account the currently missing sections).

[49] M. Sacer. I. Edit. I. Takács. Pannonhalma, 1996, p. 234–235, 126. note.

Fig. 11. Reconstruction of the medieval Abbey church; the nave

Fig. 12. Reconstruction of the outside of the medieval Abbey church; N–E view

Acknowledgement

I wish to express my gratitude and thanks before anything else to Fr Levente Hervay who led me to the love of our medieval monastery and who assisted in the present work several times. I would like to thank Balázs Bodó and Gergely Buzás, archaeologists, for their honest and quick assistance. They appraised the more significant stone fragments that were found in September 2005 and made the technical drawings to be inserted in the computerized reconstruction. They continue to provide useful information even today. Last but not least I thank Csaba Benkő, graphic architect, for the reconstruction of the medieval abbey church, which task demanded a great deal of work, challenges, and study of the history of art.

Appendix

Letter of Abbot Abraham Wabrzig dated 17th October 1699. Heinrich Grüger: *Der Beginn der Union von Heinrichau und Zirc (1701–1752)* Analecta Cisterciensia. 38 (1982) p. 68. (Original: Breslau/Wrocław Egyházmegyei Levéltár V-B-6c)

Zircium monasterium magna ex parte dirutum. Ecclesia est extructa ex meris lapidibus scissis; arcus, fenestrae, columnae item formatae ex lapidibus politis adhuc illaesis. Formam habet crucis ad modum ecclesiae Henrichoviensis, unico excepto, quod navicula seu pars presbyterii sit quidem tam lata, non autem tam longa sicut Henrichovii, nec penes presbyterium sint laterales ambitus, ut circumiri possit, sed ex utraque parte presbyterii duo sunt contigua sat ampla sacella, muro interposito, pro nunc omnia quatuor adhuc fornicata. Ad modum denique ecclesiae Raudensis est Zircensis, nimirum posterior ecclesia post Chorum, ut Henrichovii habet tales laterales ambitus et tam altos arcus; anterior autem pars penes majus altare nullos laterales ambitus habet, et sicut Raudae penes presbyterium ex qualibet est unum, sic Zircii sint duo contigua sacella, interposito muro, v. g. ubi Henrichovii sacristia actualis aut repositorium est unum et alterum ubi est ambitus sacellum versus S. Josephi et eodem modo sunt in altera parte. – Extant praenominatae ecclesiae muri medii ecclesiae supra columnas exstructi et laterales usque sursum ad tectum, et quamvis tectum nullum sit, posset sine magna dificultate superponi tectum, cum murus nulla indigeat elevatione, cum adhuc ejusdem altitudinis sit, cuius fuit, tum ut tecta Ecclesia. Integri sunt enim muri, sine omni concussione lapidum politorum; ex parte altaris majoris usque ad tertium arcum inclusive posterioris ecclesiae, v. g. usque nostrae Ecclesiae ad arcum scamni D. Cancellarii inclusive, fenestrae omnes sunt in forma fenestrarum novarum Ecclesiae Henrichoviensis, quae in Ecclesia inferius e regione D. Cancellarii extructae sunt, et post majus altare est ingens et pulchra fenestra integrorum lapidum extructorum. Sacristia est pulchra, lata et longa, cujus muri adhuc integri extant. Dormitorii laterales et intermedii muri in tractu inferiori, ubi est nostrum capitulum, omnes sunt adhuc integri; superior tamen pars, hoc est dormitorium, media ex parte, cum medietate fenestrarum cellarum est diruta; et in medietate altera dormitorii adhuc sunt fenestrae lapide polito cinctae et modestissime formatae integrae, collapsis tamen omnibus fornicibus, etiam omnium ambituum, quod fornicatae fuerint. Refectorii muri omnes ac frontispicia etiam adhuc integri sunt, collapsis tamen fornicibus. Longitudo sacristiae, dormitorii et refectorii, quae ad meridiem versus, ut Henrichovii, sunt extructa, tanta est, ut Henrichovii ab Ecclesia usque ad Refectorium inclusive.

Specifica enumeratio possessionum et desertorum praediorum abbatiae B.M.V. de Zirc appertinentum Zirc. 65-67. c. 1729, Zirci Apátság Újkönyvtára.

[Zircz – p. 65.] *Remanserunt nihilominus permagnicae olim Basilicae rudera altissima usque hodie admiranda cum uno tractu (aq?) in ruderibus desolati monasterii. Litterae fundationales abbatiae de Zircz una fere cum omnibus documentis antiquis sunt depeditae, qae quidem si fonte extarent in Archivo Comerae Regiae Posoniensis diligenter solicitatae sunt, sed non sunt repertae. ...* [Annotationes – p. 66.] *N. 1° Fuerunt olim in Zircz duae ecclesiae: una quidem solemnior monasteriensis, altera vero* [p. 67.] *oppidana, penes quam prouti extruderibus colligere licet, in uno contiguo erat domus parochialis. De patronis divis harum ecclesiarum hic et nunc nihil constat. Refert dilaudatus historicus R. P. Martin Szentiavny, Soc. Jesu antiquibus in Zircz existisse miraculosam imaginem, quo devenerit norunt superi. Duo secella in ecclesia monasteriensi sunt purgata, et scandolis tecta, ubi sub caelo missae celebrari solent; antequam Zircii pagus fuisset, ibi noctarunt patres nostri, atque loco cantus fratrum in choro psallentium audiverunt in vicinitate, lupos intonantes et ejulantes. Reperiuntur in ecclesia majori et monasterio hinc inde multae cavaturae, ubi subulci ac alii mammonae nequam filii thesauros qvaesiverunt, qui jactibus lapidarum per majorem fenestram rotundam in praesbyterio post dirutum altare atque etiam comparitione spirituum ac religiosorum cucullatorum frequenter intimidati, et a laboribus abacti sunt.*

Historia domus. p. 43. (1738), Zirci Apátság Újkönyvtára.

Anno 1738. Eodem anno audieris subinde famam et per totam Pannoniam divulgatum rumorem de ruderibus antiquis tam monasterii, quamque et vel maxime de ecclesia Zircii existentibus, vere uti et ego vidi, non opus fuisse simplex, sed vere regium, ast, quod placuit antiquis, recentibus non assidet; quamquam opus regium omnino fuerat, tamen ob iniurias tempestatum, longitudinem temporis et invasiones äeris, et vel maxime ob furorem incendii hostilis ita desolatum est monasterium et templum, ut non regio, sed mendicabulo hinc inde lacero aequiparatum fuerat. Cum igitur iam hoc tempore, quo haec insero, novum monasterium ex antiquo extructum sit, etiam eadem mens consuluit, ut ex antiquis ruderibus ecclesiae, ecclesia formaretur nova, uti videbis ex praeteritis scriptis, lapidem fundamentalem positum esse, adeoque una pars post alteram exstantium defacto ruderum diruta est; ultima vero et quidem maxime miranda frontispicii anno supraposito 19 Decembris per artificium pyrabolarum pulverum dejecta est, in quo frontispicio fenestra apparebat integra et artificiosissima, quae tamen per äeris injuriam multum infestata, partes ejus pro nullo aedificio applicari potuerunt.

Translated by Anna Varga

Drawn by the H. Krzysztofowicz

Architectus

2008
Nr 2(24)

Olga Miriam Przybyłowicz*

The architecture of the church and cloister of nuns of the Order of St. Clare in Stary Sącz in the light of written sources and literature of the subject

The issues of architecture of the cloister of nuns of the Order of St. Clare, in particular the ones referring to the Poor Ladies cloisters, which were endowed in the territory of Poland in the Middle Ages, have been discussed only marginally so far [11], [30], [40, p. 174–178], [41 col. LXXXIV–LXXXVI], [66], [73]. These issues have been considered by historians as well as by other researchers who represent various branches of science but in comparison with other research examinations on monastic communities, their achievements appear to be meager [3], [4], [19], [21], [22], [42], [43], [54], [69], [79], [81], [82][1]. The issues of architecture of the St. Clare cloister – definitely more often concerning churches than convents – were most often presented on the margin of research examinations concerning the architecture of époques, styles of buildings and finally monographs of towns in which cloisters of St. Clare nuns were situated (Zawichost, Wrocław, Skała, Stary Sącz, Gniezno, Strzelin, Głogów) [9], [10], [31], [45], [68], [77]. So far, the only authors who have covered the issues of architecture of Franciscan monasteries in Poland are M. Kutzner [38] and P. Pencakowski [51], [52]. M. Kutzner presented an outline of the state of research examinations on Polish and European Franciscan architecture in the Middle Ages putting emphasis on showing the peculiarity of the Polish model of Franciscan cloister architecture. The main goal of his research was a comparative analysis of Polish Franciscan churches but he marginally refers to the architecture of the female branch of the Franciscan monastery. P. Pencakowski presented stylistic features of the Mediaeval churches of St. Francis monasteries in Małopolska.

* Institut of Archaeology and Ethnology of the Polish Academy of Sciences in Warsaw.

[1] This is a list of the literature on the subject concerning the Cistercian Monastery in [47] and therefore, for the purposes of this article, I present only the key items which refer to different monasteries.

However, the subject of my interest is focused on the architecture of one of the cloisters – a convent complex of the nuns of the Order of St. Clare in Stary Sącz. The objective of this article is to present the existing written sources which allow – despite the fact that there are no archeological or architectural examinations of the object – to throw light on the stages of building the cloister and compare them with the current state of research investigations.

The convent of nuns of the Order of St. Clare in Stary Sącz – the third one in the history of cloisters in the territory of Poland (apart from those in Zawichost and Wrocław) was founded in 1280 by Princess Kinga's Foundation, the daughter of Bela IV the King of Hungary and the wife of Prince Bolesław Wstydliwy. Kinga, who took the habit several years before her death (Długosz mistakenly claims that she did so some days after her husband's death [25, p. 207]) and she took vows, was a benefactress of Sądecka Land. The Princess not only founded and financed the cloister but she also founded the town itself (between the years 1257 and 1273) [31, p. 45, 67, 68], [63, p. 34, 44, 122]. Kinga made foundations as a sovereign Lady of Sądecka Land which had been given to her by her husband as an expression of his thanks for her previous financial help. The Princess founded the Sądecka Community six months after her husband Prince Bolesław died and she issued a foundation document on July 6, 1280. It is probable that the decision about the foundation was still made during the life of the Prince who was a protector of the Order St. Francis (he founded Franciscan cloisters in Zawichost and Nowy Korczyn and he generously supported the convent in Cracow where he was buried) and together with his saintly wife took the vows of chastity. Princess Kinga handed over *civitatem Sandecz cum theloneo et omni questu et utilitate ipsius* [32, v. II 487] to the nuns of the Order of St. Clare and donated 28 villages, seven of which: Podolin, Łącko,

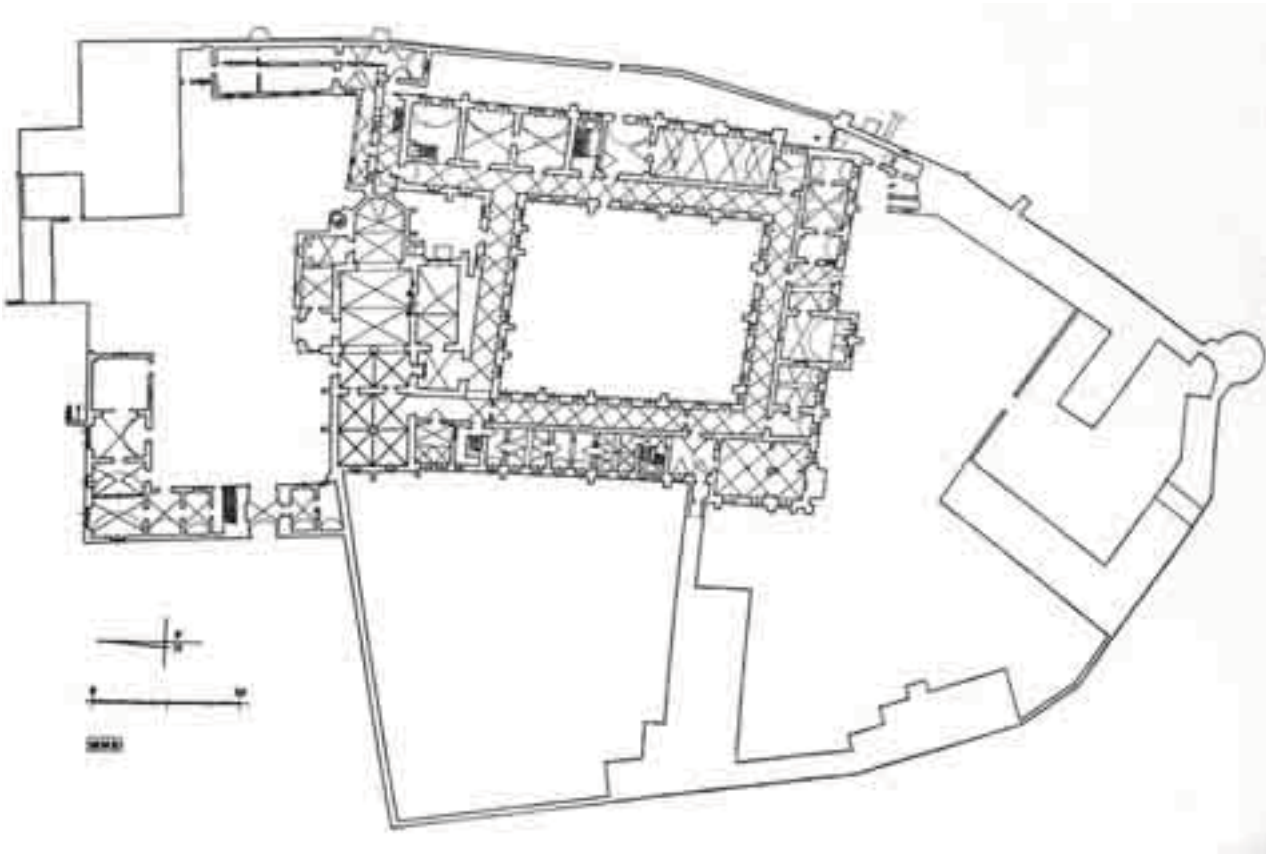


Fig. 1. Plan of the monastic ground floor by M. M. Kornecki, [12 fig. 4, p. 30]

Bieczyce, Ołbina, Podegrodzie, Moszczenica i Gołkowice were known from the previous documents of Małopolska princes, whereas 21 villages formed new centers on the map of Sądecka Land of the 13th century [63, p. 52]. The Stary Sącz Community received the greatest funds from among six Mediaeval convents of nuns of the Order of St. Clare founded in the Middle Ages in the territory of Poland and in Silesia which was the reason why this Community was in possession of the greatest funds in comparison with other convents (Zawichost, Wrocław, Gniezno, Strzelin and Głogów).

The area, which was donated to build a convent and a church on it, was situated in the north-east part of 'the chess arrangement' of a non-standard spacious arrangement (Beiersdorf and Krasnowolski see Hungarian and Czech analogies [10, p. 303–305], [12, p. 22–26]) of the foundation town [35, p. 180–188][2] above the flooding scarp of Poprad.

The literature on the subject concerning the architecture of the complex in Stary Sącz in comparison with the studies referring to architectural issues of other temples of St. Clare convents is of considerable volume. In the former publications, unfortunately, the issue of the stages of building the church was not settled explicitly [11], [12, p. 28–36], [33], [34], [40], [41], [51], [52], [66], [73], and what is most important, the problem of the stages of building the cloister was not clarified in details at all.

There have been no historical sources about the architecture of the St. Clare nuns' Holy Trinity church, which was mentioned for the first time in 1285 in the document issued by the archbishop Jakub Świnka [32, v. III, no. 145]. The absence of any archeological research examinations makes it impossible to give an answer to the question whether the present arrangement of the church with two oldest rooms which constitute the part of the cloister – a convent choir on the upper storey and a chapter-house on the ground storey situated in the main part of the temple –comes from the first stage of designing and building the church – from the 13th century or from the second stage – a 14th century reconstruction [11]. W. Łuszczkiewicz [40, p. 174], [41,col. LXXXIV–LXXXVI][3] claimed that the original church which was used by nuns and friars (?)[4] was wooden and 'provisional'. This view was rejected by the majority of researchers with the exception of P. Pencakowski [52, p. 85]. Łuszczkiewicz claims that the block of the presbytery was built in 1332, whereas the aisles, on the basis of the vault analysis, were built even at the end of the fifteenth century [40, p. 174–178].

[2] The author mistakenly claims that Kinga held the office of abbess, p. 184.

[3] His information was also given in the *Catalogue* [26, p. 328], which was described in the following way: "probably wooden".

[4] See information about his topic on p. 4.

Fig. 2. Bird's eye view of the monastery and interior viridarium in the enclosure building from clock tower (photo: O.M. Przybyłowicz)

In the above mentioned document of the archbishop Jakub Świnka from May 1285 we can find some information concerning the construction of a new temple and granting of 40 days of indulgence for the following people: [...] *qui ad opus ecclesiae de novo ibidem construendae, manum porrexerint adiutricem* [32, v. III, no. 145]. This information cannot only mean the continuation of the temple construction but it can also refer to a new investment – if we accept the existence of the original wooden building. The latter variant gives rise to a question about the place for the foundation of the wooden temple. A wooden church cannot have been built at the same place where the present stone-wall temple is situated. If it had been pulled down, nuns and friars – who lived in the north-west part of town – would not have had any possibility to celebrate a service and say prayers according to the observance which constituted the essence of the contemplative way of life, especially for nuns. The earliest history of St. Francis foundation in Stary Sącz has no source documentation and the facts as to the dates of origin of the Franciscan church as well as the monastic construction are not certain. Beiersdorf, B. Krasnowolski [12, p. 35] maintain that the Franciscan church already existed in 1287, while according to Pencakowski [52, p. 84], the church of St. Clare nuns was also used by friars in the 13th century because they did not have their own temple in Stary Sącz. The reason why there appeared interpretations in the literature of the subject recognizing the church of St. Clare nuns as a double temple – these interpretations are wrong in my opinion – is the mistaken interpretation of the document of the abbess Anna of nuns of the Order of St. Clare from 1310; in its dating formula we can find the following information: *Lecta est hec appellatio in Sandecz, in parochia, et ibidem* [i.e. in Sącz – O.M.P.] *apud fratres Minores et sorores in ipsarum ecclesie, item apud fratres eiusdem ordinis in Cammenicia* [32, v. II, No. 551]. The pronoun *ipsarum* indicates a female gender, which means that the temple belonged to the nuns of the Order of St. Clare; this fact does not certainly exclude the presence of Franciscans who took care of the nuns' spiritual needs, they were their confessors, lectors, witnesses of legal activities and moreover, they were their attorneys in court. One of the Franciscan friars about whom we know from the documents (1312–1317) is Florian who is also known as an attorney[5].

There are no sources either as to any other location of St. Clare nuns' church than the location on the plot of land given by Kinga. What is more, at the end of the 13th century we still do not have any well documented situation of the parish church in Stary Sącz under the invocation of St. Elizabeth which was built as a result of foundation of the town, but after several years from the foundation the church was destroyed by fire (it is not known to what extent). The above quoted document of the abbess of nuns of the Order of St. Clare gives evidence that the parish church had been already used since 1310 [32, vol. II, no. 551]. A possible usage of the parish church by friars – at the moment of building a stone church near the cloister of St. Clare nuns – seems to be probable but problematic at the same time; but in the case of an enclosed order, nuns who are not allowed to leave their place of destiny – such usage is absolutely out of the question[6].

---

[5] In 1313 he was a plenipotentiary (proxy) in the dispute with Czarnota, in 1316 he demarcated the border between the property of the nuns and the estate of Marcin from Brzeźna [32, v. II, no. 556, no. 558, no. 564, no. 568, no. 630]. In document no. 558, other three Franciscan friars were defined in the document as the persons who were designated by the abbess to take part in mediations: *mediantibus suis legitimis procuratoribus*.

[6] The present block of the parish church dates back to the middle of the 14th century [12, p. 50, 90], [65, p. 204–205].

Fig. 3. The old monastic chapter house of 13/14th c.with main column, cantilever and leading out of the ribs (photo: O.M. Przybyłowicz)

As far as I am concerned, the presented argumentation shows that the document of the archbishop Jakub Świnka refers to the continuation of the temple of St. Clare nuns, which was built of stone since the very beginning of the foundation. Controversies appear when it comes to dates of the stages of Holy Trinity church construction; this church originally had three invocations – as it is shown in the document of the bishop Grot of Cracow from 1332 [32, v. II, no. 606]: [...] *per nos ad honorem et laudem summe et individue Trinitatis et b. Marie genitricis Dei nec non eiusdem S. Clare consecracionis munere dedicatam*... W. Łuszczkiewicz [40, p. 714–178], [41] and the recently issued manuscripts by S. Tomkowicz [65, p. 219–222] did not describe the problem precisely but they only referred to the detailed description of the inner part of the temple. According to the interwar researcher T. Szydłowski [69, p. 153–171], the western part of the body was built at the end of the 13th century, while the eastern part of the body with the presbytery at the beginning of the 14th century. After-war examinations did not lead to any uniform interpretation. In Węcławowicz's opinion, which was presented in the monograph about the Gothic style of architecture in Poland, the many-sided presbytery with narrow lance-shaped windows and an extended room corpus indicates that the church of St. Clare nuns was built in the first tierce of the 14th century [5, part. 1, p. 65, 66][7]. The scheme of the temple was supposed to be different from traditional mendicant models of this period, while characteristic forms of stonework can indicate the influence of building workshops from the region of Lower Austria and Wawel's *fabrica ecclesiae* while building the cathedral [5, part. 1, p. 65–66]. Węcławowicz's concept constituted the continuation of the original view of K. Beiersdorf and B. Krasnowolski who thought that the presbytery with the Roman engravings was the older part in the years 1280–1285, whereas they dated back the building of the corpus to *ante* 1332 [10, p. 308–310], [12, p. 29–31][8]. In the same publication where the concept of T. Węcławowicz was presented, A. Włodarek – in the second part of this publication – claimed that this is the aisle corpus that was the older part of the church and it was built in the years 1280–1287, whereas the presbytery was built before 1332 [5, part. 2, p. 215]. P. Pencakowski [51, p. 29, 30], [52, p. 84, 88, 89 and further] by carrying out a typological and stylistic analysis of similar cloister objects from the region of Lower Austria submitted a thesis that the church of the St. Clare nuns was built in the Gothic reduction style in the years 1310–1332 and constituted a uniform program and space concept which had no connections with building workshops of the third Wawel cathedral. In the latest article, B. Krasnowolski withdrew partially from his previous hypothesis and then he stated that *a general program of the church* […] *would come from the period of foundation, whereas the forms and details of the Gothic style of architecture* […] *were connected with the royal building workshop of Wawel Cathedral and its consecration in 1332* [35, p. 185].

These concepts which repeatedly exclude one another give rise to many questions and doubts in view of the practical side of the nuns' existence; first of all, the requirements of the St. Clare nuns' observance and the contemplative character of the order. The question arises whether it was possible that the nuns could be deprived of a separate gallery-oratory which would be inaccessible to both the laic and clergy (the western part of the aisle corpus), the place where they spent most of their days and nights saying their prayers for over half of a century since the moment of Kinga's foundation. The Stary Sącz foundation received the greatest funds among female cloisters of St. Clare nuns in the territory of Poland which undoubtedly had an influence on the level of quality of life in the cloister [within the range determined by the order], including impetus, appearance and the speed of building the church and cloister complex. The problem arises whether building the complex could take so much time, while other churches of St. Clare nuns, which had less generous founders and less money, for example in Zawichost, Wrocław and Głogów, were built much more quickly – within several years since the document of foundation was issued[9].

[7] Franciscan church in Nowy Sącz and Dominican nuns' church in Sandomierz had a similar two-plane arrangement.

[8] Attention was paid to the thinner walls of the presbytery in comparison with the aisle and analogies with cloisters in Lower Austria.

[9] The nuns came to Wrocław in April 1257 and they received a stone-wall consecrated church and some rooms in the cloister in June 1260 but they lived in a small wooden cloister during the previous three years. More information about Zawichost, see: [35, p. 170].

The bishop of Cracow Jan Grot consecrated the church in the third decade of the 14th century in 1332, many years after the death of Kinga [32, v. II, no. 606][10] and this date can be treated as the one in which the final construction works were finished, certainly in the church but possibly in the cloister as well.

The church was built in the Gothic style of architecture with the usage of Beskidzki sandstone; it had one aisle with an extended five-span corpus and a narrower, shorter two-span (Krasnowolski [35, p. 186] mistakenly one-span) presbytery with a three-side arrangement. The three western spans of the aisle corpus (with similar escarps as in the presbytery) were divided into two storeys. On the upper three-span storey there was – and there still is – the oratory, the nuns gallery-choir, while on the lower two-span storey there certainly was the original chapter-house which was called the Stone Sacristy [11, p. 133]. The oratory was built on the square projection and it is open from the eastern side by means of the ogival, divided into four parts open-work in the direction of the church. The room with one column situated in the central point – known in the Gothic architecture in the 13th and in the first half of the 14th century and defined as a structure or one-column room (one-pillar room) – has four spans with a cross and ribbed vault [46]. The greatest boom in the employment of rooms with one column which performed the function of the chapter-house in the monastic architecture (especially in Cistercian and Mendicant monastic orders) took place at the turn of the 13th century [46, p. 20–21, 25][11]. The original chapter-house of St. the Clare nuns may have probably performed the function of the gallery-choir until the process of building the oratory on the upper storey was completed.

In consideration of the building code concerning Franciscan temples – which forbade to use vaulting in case of the churches built after the Chapter in Narbonne in 1260 [16], [45, s. 98][12], the corpus of the temple should be covered with a simple beam-framed ceiling. The theory, as it was proved by the observations of W. Łuszczkiewicz [40, p. 174–176], [41, table XXVII], [65, p. 222], [73, p. 293] in the case of Stary Sącz, was in accordance with the practice. The evidence which proves the theoretical assumptions of the church architecture is contained in the document of Jan Długosz – which was written almost 150 years after the moment of foundation – in which he described the state of conditions of the church and cloister complex in the middle of the 15th century. Długosz, who mistakenly attributed the building of the church and cloister to Princess Kinga's husband – Bolesław Wstydliwy (the prince died in December 1279), claimed that the church, which was built of white stone, had a wooden-board ceiling [26, v. III, p. 337–339], [27, p. 244]. This comment of the chronicler is an indication of the original, wooden ceiling with no vault. The chronicler claimed that the temple with the chapel – where Kinga was buried – adjacent to the south aisle was in good conditions and no renovation works were necessary.

The engravings made in the plaster on the northern wall of the presbytery have the 14th or even 13th-century Roman certificate; the engravings consist of fabulous animal creatures, knight helmets and some plant motives [67, picture 714]. A stylistic analysis of the preserve vault allowed P. Pencakowski to express an opinion on the late-Gothic 14th-century vault over the fourth and fifth span of the aisle as well as on the 17th-century vault forms of the oratory itself [52, p. 86], which – because of no written sources or architectural and archeological research examinations – constitutes the only research hypothesis.

The chapel under the invocation of Our Lady (at present of St. Kinga) was built on the southern side adjacent to the eastern spans of the aisle as well as the so called Confessional which was situated next to the chapel on the western side. Architectural details of both rooms situated on the southern side of the church of St. Clare nuns show that they were built at the same time and they were connected with the first phase of building the temple [52, p. 87]. The confessional was supposed to be built on the place where Kinga had her cell. Such an arrangement of both the chapel and the cell of the founder has analogies with the solutions employed in Prague in the cloister of St. Clare nuns which was founded by the King's daughter Agnieszka (1231) who took vows in 1234. In Prague in the years 1238–1245 the chapel of Our Lady (three-span) was added to the northern wall of the presbytery of the St. Francis church; next to the chapel there was the cell-oratory of the Czech king's daughter [64, p. 87, 92, 94]. A solution which was similar to Prague and Sądecki ones was also used a little bit later in the cloister in Obuda, where the elements of the tomb chapel of the founder Elżbieta Łokietek were discovered [70, p. 23].

The stages of building the cloister and its architecture did not cause such controversies in the literature on the subject, mainly in view of the lack of particular interest in this issue by researchers. Written sources – used by the literature of the subject to a very small extent – give us, however, extraordinarily precious information.

---

[10] [...] *ecclesiam in Antiqua civitate Sandecz in honorem sanctae Clarae fundatam ac demum per nos ad honorem et laudem summe et individue Trinitatis et beatae Mariae genitricis Dei nec non eiusdem sanctae Clarae consecrationis munere dedicatam...*

[11] The direct connection of the church with the chapter-house in the form of a one-column room was used, for example, in the church of St. Clare nuns in Judenburg in Austria; J. Goetz, *Zentralbau und Zentraltendenz in der gotischen Architektur*, Berlin 1968, p. 120 and the next pages.

[12] During the general Charter in Narbonne in paragraph eight of the statutes it was stated that Franciscan churches cannot have vaults, excluding the part above the altar but exclusively with the consent of the general of the order, while in paragraph fifteen it was forbidden to decorate churches with pictures and stained-glass windows (excluding the window behind the altar) as well as to build detached belfries outside the church (paragraph sixteen). The papal edict from 1279 changed some ideas in the architecture and the original indications of St. Francis as well as the statutes from Narbonne were gradually forgotten and at the turn of the 13th century they were no longer used in practice.

The cloister of St. Clare nuns was mentioned for the first time in the foundation document of Princess Kinga issued on July 6, 1280 [32, v. II, no. 487]: *cenobium seu claustrum* [...] *in ipsa civitate Sandech fundandum statuimus et etiam construendum*. However, it was only the announcement of building the enclosure shelter for Poor Ladies. This is testified by the document which was indirectly addressed to Leszek Czarny the Prince of Małopolska in January 1281 by the bishop of Cracow Paweł from Przemanków. The bishop forbade anybody – including the Prince – to dissuade Kinga from her intention to build the cloister: *ut ipse predictam dominam Kunegundim* [sic!] *ab edificatione claustri pro sororibus ordinis s. Clare non attemptet impedire, quod videlicet claustrum eadem domina dotavit suo teloneo de Sandecz et triginta villis ibidem situatis*… [32, v. II, no. 491]. In the middle of the winter nobody carried out building works but the document paid attention to objective difficulties that accompanied the foundation and building of the cloister. The cloister was situated on the southern side of the church.

Were the cloister buildings, at least some of them, ready in 1238 since in the 1238 bulla Pope Martin IV confirmed the grants for the St. Clare nuns in Sącz *in qua vestrum monasterium situm est* [32, v. I, no. 102 and 18 v. I, no. 837]? It seems that it could have been a standard formula determining a foundation and not the real knowledge of the Pope about the condition of building the cloister, the more so as the bulla constituted the answer to the previous supplications sent by Kinga to Rome (*vestra petitio*). Taking into consideration the time which was needed for the exchange of correspondence, the above expression could not have probably referred to the actual condition of the cloister complex in 1238. Building works were carried out in the succeeding years and the cloister must still have been without ramparts if the nuns had to leave the cloister in 1287 and took shelter in a small castle in the Pieniny Mountains because of the invasion of Tatars [25, p. 247], [83, p. 78–79].

Building of the cloister also lasted after the death of the founder in 1292 and most probably it was still not completed at the end of the 13th century. This is confirmed by the idea of moving the nuns to a safer place – to a new town, Nowy Sącz which was founded in 1292. The Stary Sącz cloister may not have fulfilled the conditions of a safe abode for a female enclosure community and for that reason Jan, a middle-class man from Kamienica, i.e. a village situated in the area of Nowy Sącz which was founded by the Czech king Wacław II, declared building the cloister for the St. Clare nuns at that place *suis rebus et areis* [32, v. I, No 132]. According to the Franciscan order tradition [44, p. 245], Franciscan friars who settled in Nowy Sącz in the years 1292–1297 took over the area and buildings which were built for nuns.

In the light of the above comments, the opinions presented by priest Załęski [78, p. 36] and W. Łuszczkiewicz [41, col. LXXXIV] – the oldest researchers of the history of Stary Sącz – and concerning a quick, one-stage building of the church and cloister of the Poor Ladies by Prince Bolesław Wstydliwy at the place where the old castle was situated and with the usage of its fortifications (this information was repeated later in the literature of the subject [73, p. 292 in 192], should be treated as the ones that did not fit the 13th-century reality.

The 14th and 15th-century source information with regard to the cloister architecture is still very scarce in comparison with the sources from the 16th and 17th centuries but they already give some particular information. The *The Life of Kinga* written by an unknown Franciscan friar [83], information collected by Jan Długosz [25], [26], [27] and other documents constitute the basic source.

It is clearly seen from the earliest source information that in the Middle Ages the cloister was deprived of the classic four-sided cloister garth, whereas the existing buildings did not constitute one coherent structure like, for example, in the case of the original Clare's cloister in San Damiano or in the Prague convent founded by the king's daughter Agnieszka [20, p. 114–116], [64, p. 102–121]. Długosz claimed that the cloister consisted of *singulos monasterii officinas* [27, p. 244] since the moment of its foundation till the moment of his visit in Stary Sącz, i.e. the middle of the 15th century. Was there no cloister garth in Stary Sącz at all – *the claustrum*, one of the most important and indispensable elements of the cloister buildings? However, a part of the buildings of the Stary Sącz cloister constituted – as it results from the sources – a certain coherent structure which was connected by means of corridors and stairs. This is testified by a dangerous accident of one of the young nuns who fell down from a certain height and was seriously injured [83, p. 168][13]. Doubts resulting from laconic Stary Sącz information sources with regard to the cloister garth and the fact that in the St. Clare nuns' order nothing was mentioned about this part of the cloister – similarly as in the Franciscan order [16] – can only be cleared up by conducting archeological examinations in the territory of the complex. It is worth saying that the detailed instructions concerning the building of the cloister garth – which was treated as the heart of the cloister – can be found in books of architecture and building art *There should be a portico around the courtyard – the place of walks, rooms, a refectory, chapter–house and in suitable places all of this that is necessary according to the rules of open houses* [2, p. 127], [55, p. 488–491].

A private oratory – the cell of Kinga was the most often mentioned room of the cloister in The Life of Kinga. It was interchangeably defined by means of the word caminata (chamber). Such names suggest that this room had two functions: it was a place where the Princess said her private prayers and at the same time it was a place where Princess Kinga lived as a St. Clare nun. This chamber (apartment) was situated inside the enclosure but, in fact, it was inaccessible to other sisters [83, p. 148, 154, 158, 159, 160,

[13] When sister Clare was young: [...] *casu de ambitu ceciderat et magno clavo per guttur transfixo inhereret*...

166, 169, 172][14]. This laconic description does not tell us anything about the place where the cell was situated – the oratory of the Princess. From the written sources, we only know that Kinga often spent her time saying her prayers in the south aisle of the church. The above mentioned Chapel of Our Lady may have been built at the place where the founder was living. It can not have been the original cell of Kinga because it was built along with the church, which means that most probably the Chapel was built at the end of the founder's life or even after her death; only the iron bars which separated the chapel from the church were situated in a different place in previous centuries than nowadays[15]. W. Łuszczkiewicz [41, col. LXXXV] i S. Tomkowicz [65, p. 230] believed that the chapel came into being by adapting a part of the corridor otherwise called the cloister garth, but this assumption would have to accept the existence of the coherent structure of the cloister already at the end of the 13th century, which – as I proved earlier – is impossible. The ogival portal in the western wall from 1400 and the coats of arms of the 16th and 17th-century bishops of Cracow, the reformers of the convent – Jerzy Radziwiłł and Bernard Maciejowski [65, p. 230], which were painted on the keystones of the cross and ribbed vault give evidence to the mediaeval and modern reconstruction of this chapel.

After the Princess's death, her body lied – most likely on a bier – in the cell-oratory. This cell was so small that all the sisters as well as Franciscan friars who wanted to pray for the soul of their dead benefactress could not stay there at the same time. As it results from the report of the biographer, some of the St. Clare nuns stayed outside the oratory of Kinga while saying their prayers [83, p. 178]: *Altera quoque soror nomine Tomka per nimia fratrum et sororum multitudine, in qua felix domina iacebat, intrare non valens*.

Very few reports concerning the appearance of the oratory – the Princess' cell, allow us to state that candles were burning in it all the time: [...] *quinque candelas in honorem quinque vulnerum Christi semper in sua camerula cremabat* [83, p. 154, 167]. Kinga, who was known from an ascetic character and way of life, spent her time mainly meditating, which was preceded by a short prayer in front of the picture of martyred Christ. There must have been a place to lie down in the oratory – perhaps a very simple bed made of planks on which the Princess lay during her long illness [83, p. 173] preceding her death in 1292. It is very unlikely that the sick Kinga lied directly on the stone (?) floor. We do not know what other pieces of furniture were in her cell. The information about the convent rooms come from contemporary inventories, chronicles, documents, which mention wooden tools, seats, chests and also stoves as the equipment of cells [17, p. 111].

We learn, much less about other cloister buildings from *The Life*. The biographer of the Princess mentioned common rooms which were called *stubae*. Some of them were heated. In *The Life* we can read about an infirmary, kitchen and detached buildings whose purpose was not known [83, p. 157, 168, 169]. It is most probable that the infirmary was heated where not only sick sisters stayed but also various medical therapies were concluded, among others, a popular therapy in the Middle Ages – not only in cloisters – bleeding – *minutio* [48, p. 101–102], [17, p. 273]. In the St. Clare nuns' observance, the frequency of such therapies was specified:

Fig. 4. Parlatorium of 17th c. before general preservation in the year 2008 (photo: O.M. Przybyłowicz)

Fig. 5. Parlatorium and east part of the church with the presbytery built in the 13/14th c., present state (photo: O.M. Przybyłowicz)

[14] The sisters often heard 'strange voices' from the private oratory of the Princess; neither sisters nor her confessor Peter from the Czech Land were allowed to enter her private oratory. Friar Peter, a new confessor of Kinga, often walked near Kinga's oratory: *Et hiis dictis surgens in suum oratorium ivit et ibidem in modum crucis prostata ante imaginem crucufixi* and he could not resist to look inside of the oratory: [...] *per fenestrulam introspexit, volens videre*... When sister Paulina hurt sister Zofia's eye with a candle fire, other St. Clare nuns immediately took her to the apartment – the oratory of Kinga believing that Kinga's prayers would heal sister Zofia's eyes and she would be able to see again: [...] *statim ad oratorium felicis domine est adducta*. The Princess herself helped the boy who suffered from eyes' illness: [...] *in oratione suus suscipiens*... When sister Wisława fell ill very seriously, terrified sisters ran to the oratory of Kinga: [...] *sorores alie ad oratorium felicis domine concite accedunt eamque in oratione impediunt dicentes et bachantes*. Hosanna walked into Kinga's cell during her prayers by accident and the King told her never to do that again.

[15] About 2–3 meters farther there was a smaller cell. Its original situation was discovered during preservation works of the chapel. Thanks to sister Salomea, the archivist, for all the explanations.

Fig. 6. Outer arrangement of the north elevation of the monastic church, with a 2. half of 13th. c./1. half of 14th c. traciery and the new window of the 17th c. (photo: O.M. Przybyłowicz)

The abbess should not allow the collective sessions of nuns' bleeding to take place more frequently than three times a year unless there is a real necessity to do so more frequently… [61, p. 31].

Apart from the above mentioned chapter-house, infirmary and convent gallery-choir, the rooms which were evidenced both in the written sources and monuments of architecture, in Stary Sącz there was also a refectory where the nuns not only had their meals. In the documents from before the period of the general reconstruction of the cloister there is some information about the cloister dining-room. We must agree that this room already existed during Kinga's life because it was one of the most important rooms for each monastic order [17, p. 105–106], [48, p. 68–69]. The nuns gathered in the refectory to have common meals as well as to make decisions; the documents were also sealed there with the consent of the abbess and in the presence of the whole order. It happened so, for example, in 1578: [...] *presentibus venerabilibus patribus fratre Sebastiano... custode Cracoviensi et fratre Gabriele de Calis confessore, venerande moniales dicti monasterii in refectorio congregate fuerunt contente...*[1, v. IV, no. 1]. This information gives rise to the question about the reason why the Stary Sącz St. Clare nuns gathered in the refectory and not in the chapter-house which was most often the place of conferences and making decisions. The contemporary refectory may have been reconstructed at that time or it may simply have been too small for all monastic superiors who came from Cracow. The one-column room – that contemporary refectory which was situated below the nuns' gallery-choir was rather small indeed – is shaped like a square with the following dimensions: 10.16 × 9.35 m [65. p. 221]. The refectory was not the only place where documents were issued in Stary Sącz. It was also done in the portico in front of the locutory with iron bars – [...] *in portico ante cratas* [32, v. III, no. 363, 364 and 80 v. V, No 1285].

In the inspection decree of the bishop, Jerzy Radziwiłł, from 1599 [57, card 9], there are some historical references to the old refectory which was situated at the end of the old western wing (?) which went from the chapter-house (the room supported by one column) to the south towards the Młynówka canal and the courtyard. It is difficult to make evaluations without archeological examinations whether that 16th-century refectory was situated in the same place where the mediaeval room was placed or if it was an original place where Princess Kinga had her meals with the first nuns who were brought here from the cloister in Skala.

In the 16th-century *Kinga's Life* there is no information about a dormitory, a successive room which was unusually significant for the community character of each monastic order. In the St. Clare nuns observance [61, p. 19] there is the following statement: *All the nuns, both the abbess and others, dressed and wearing a monastic rope should sleep in a common sleeping-room, each nun should have her own bed which should be separated from other sisters' beds*. Jan Długosz also mentioned a common sleeping-room of Stary Sącz nuns in the *Life of Kinga*. The chronicler writes about one of the cloister wings adjacent to the church, i.e. the north wing, and that it was the most quickly built part of the cloister complex during Kinga's life. Inside this wing – where, during the chronicler's life, there was originally the oratory of Kinga herself – the oldest nuns lived [27, p. 337]. Consequently, was it the actual dormitory or was it only the room adapted for such needs? Jan Długosz added that other nuns lived in separate little houses situated in the territory of the enclosure within the area surrounded by the cloister walls. It is quite probable that these cells were the place where nuns meditated individually as well as worked there and they gathered together in the common dormitory for the night. It is difficult to say something certain about the inner appearance of common rooms as well as about small cell-houses because there are no written sources; besides, there were never-ending reconstructions in cloisters. This is proved by historical materials dating back to the last years of the 16th century [17, p. 101], which allow us to assume that alterations and corrections constituted an everyday element of the cloister life in the Middle Ages; at that time, cloister buildings – partly or entirely built of wood – were lit up by means of oil lamps and candles and in this way they were exposed to fire and quite often whole cloisters were burnt down completely.

The existence of the dormitory is certified by the inspection of Cardinal Jerzy Radziwiłł who, in a document, calls one of the inspected rooms in 1599 'the old dormitory' [57, card 9]. By studying the laconic historical sources we cannot specify where the dormitory was situated or if there were partitions and curtains in it as it was ordered in the observance and practiced in the Middle Ages [48, p. 107], or if it was one common room like in Assisi. It is certain that the cardinal, Jerzy Radziwiłł, [57, card 9] suggested that in the new dormitory partitions should be made.

Fig. 7. The south part of cloister walls (16/17th c.) with a tower under the modern plaster before preservation in 2008 (photo: O.M. Przybyłowicz)

The end of the 16th and the beginning of the 17th century was a breakthrough period, both for the architectural appearance of the cloister and mental and religious changes of female residents of the Sącz community – the changes which were initiated by resolutions and acts made during the conference of the council of Trent. The sources from this period – from the turn of the 16th century allow us to reconstruct the architectural scale of changes and the appearance of a new built cloister.

The Trent reform in the Cracow diocese was introduced unusually dynamically by the cardinal – the bishop of Cracow, Cardinal Jerzy Radziwiłł [8] – and he influenced a new architectural form which with its cosmetic changes is preserved until today.

The first type of historical sources in which we find the information about the cloister architecture is constituted by inspection decrees of bishops and their proxies, who visited the convent in Stary Sącz, by virtue of the Pope's decrees and resolutions of the council of Trent. Until the 1690s, the Małopolskie St. Clare nuns with the cloisters in Cracow and Stary Sącz belonged to – since the beginning of their foundation – the Czech and Polish province, then it belonged to the Franciscan province and they were inspected by monastic superiors. The presence of monastic inspectors is confirmed in the preserved documents, for example, the minister of the Czech and Polish province Jan Kmita [32, v. I, no. 363], [80, v. II, no. 438] stayed in the cloisters in Stary Sącz and Cracow in Małopolska during the 30s of the 15th century. However, these sources do not give – like inspections nowadays – the possibility to observe the reality of the mediaeval existence of St. Clare nuns.

The first after-Trent inspector and reformer of the Sądecka community was the bishop of Cracow, Jerzy Radziwiłł, and the last one – bishop Kajetan Sołtyk who left the after-inspection decree in 1763. The nuns keep eleven decrees in the cloister records; the first of these decrees left by Radziwiłł in 1599 and his direct successor the bishop of Cracow Bernard Maciejowski (1601) as well as the decree left by the canon of Cracow Mikołaj Dobrocieski (1607) and the priest Hieronim Ręczajski – who continued to realize Radziwiłł's recommendations by virtue of proxies of the bishop Piotr Tylicki [58], [59], [60] – give us more information about building a new cloister.

The next source referring to the history of rebuilding and architecture of the cloister constitutes contracts – building contracts concluded with an Italian bricklayer and a sculptor Jan de Simonim. In the copies we can find building contracts for building the third – the eastern and the fourth – the northern wings of the cloister [Tomkowicz and Bazielich knew only one – 65, p. 215], [9, p. 180–181] and the house of the chaplain. All these contracts are in the 17th-century Inventory of the cloister possessions [24, card 152r–153r, 164r]. Unfortunately, we do not know the contents of the first contracts concluded with Simonim [Tomkowicz, 65, p. 215 and Szczebak, 66, p. 169 know only one contract] with the cardinal himself which described the details of the process and plan of building the first and second wings of the cloister which was to be built around a four-sided, square cloister garth.

The bishop, Jerzy Radziwiłł, ordered a complete reconstruction of the cloister but it started only after the bishop's death – he died in January 1600 in Rome [8, p. 247–253][16] and perhaps this is the reason why in the

[16] Jerzy Radziwiłł suffered from ague, arthritis, bleeding tubers, nephrolithiasis. There was a period of great sadness after his death because people treated Radziwiłł as an apostle who – as the notary of the bishop curia wrote – *he never stopped visiting the area of his diocese* [diocese – O.M.P.]*, he filled and shaped Christians with the word of God* [...] *in order to make* [them] *live in an immaculate way* ... [8, p. 251–252].

Fig. 8. The north part of the cloister walls' elevation with two medieval passages or parlatoriums and ?(wheel) (photo: O.M. Przybyłowicz)

Fig. 9. The west part of the cloister walls from bishop Radziwiłł's time with junction of walls, the so-called toothing, after the preservation in 2008 (photo: O.M. Przybyłowicz)

literature of the subject there is a mistaken belief that it was the cardinal's successor – the bishop Maciejowski who was the initiator of the cloister reconstruction [12, p. 53, 93], [11, p. 137].

Moreover, the bills which date back to 1602–1604 inform us about building works and expenditures connected with the building of the second wing of the cloister; *Percepta* 1602–1604 is the oldest book of receipts and expenses but it has not been known in the range of literature of the subject so far [53][17]. The bills do not comprise expenditures for building the third part of the cloister adjacent to the eastern side of the church because the book ends in August 1604. Whereas on page 24r of *Percepta*, it is written (with faded ink) as follows: *The register of spending money on various craftsmen and construction works connected with the cloister during the office of the reverend Stary Sącz abbess*, J. P. Katarzyna Tuszowska, *which begin on August 7*, *1602*. In this part of the manuscript we can find the expenses incurred within the period of 24 months for the work of a tile-stove maker, brick maker of stone blocks, miner, lime, carter who transported those stone blocks to the cloister, blacksmith, glazier, locksmith and carpenter. Expenses incurred for each of these persons were written down on separate pages according to the money spending plan in particular months and years; only the sums and the total amount were given on each page. Therefore, there is no information for what kinds of work were these persons paid for but detailed records certify the intensification and great size of the structure. The only exception, among the information concerning expenses connected with the reconstruction of the complex, constituted the amounts written down near the name of a blacksmith. In the case of this craftsman, all works done by him or the goods which were bought for the nuns' money as well as for the amount of money which was supposed to be paid as a salary and then delivered to the cloister were described in details.

Among cloister records referring to the above described issue, we should also mention the other two sources: the 18th-century chronicle of Barbara Domicellei Fox; its author uses documents which were dispersed in various places outside Stary Sącz after the decision of the cloister annulment [7]. Some information about the cloister architecture and equipment – starting from the end of the 16th century – include documents concerning mainly leasing contracts, which were published at the beginning of the 20th century by J. Sygański [6].

The last group of sources which contained information concerning the cloister architecture and building a new complex in the 17th century comprises works of a chronicle character written by Franciscan friars starting from *Speculum Minorum* by A. Biernacki from 1660 and ending with the 20th-century works by A. Karwacki [15], [28], [29], [44].

The above mentioned sources give us relatively little information about the walls around the cloister and its protections in the Middle Ages which preceded the reconstruction of the complex as well as in contemporary times. This was the reason why there are so many generalizations in the literature of the subject, for example, *the cloister complex* […] *in fact, maintains its mediaeval arrangement* [66, p. 165].

We do not know whether the original wall separating nuns from the outer world was wooden or whether it was built of stone and brick. Z. Beiersdorf and B. Krasnowolski [12, p. 52–53] distinguished three stages of building the cloister ramparts assuming *apriori* that there was an original stone wall. They connected the first stage of building the ramparts around the St. Clare nuns' cloister complex with the foundation period, i.e. the 13th century; however, they placed the chronology of town fortification – the cloister wall constituted an element of it – in the late Middle Ages or even in the early modern times. This inconsistency makes us treat this thesis with some caution. According to the authors, the first circumference

[17] In fact, it is not only the book of receipts but first of all the book of expenses of St. Clare nuns' cloister in Stary Sącz which covered two years from August 1602 to August 1604. On the pages 1r–3v there is information about the income, i.e. the main *Perceptas* of the convent from August 1603 to August 1604. Page 4r opens the list of expenses.

was supposed to be built from the west (?) to the line limited by the present gate; the second stage of building was to be connected with *a bend of the circumference on the southern side of the cloister entrance, which would give a possibility to introduce a bay-like protection system*. The third stage – Jerzy Radziwiłł ordered to raise the ramparts shaped in this way. However, this concept when confronted with written sources raises some doubts. In Franciscan *Liber inventariorum Conventus Minorum Veteris Sandecensis* we can read: *The prince bishop* [Jerzy Radziwiłł – O.M.P.] *having jurisdiction built a high wall around the nuns' cloister which previously had only a fence*... [29, p. 140]. Cardinal Radziwiłł himself ordered additionally *No other structure should be built next to the wall* [57, card 9].

We can also find information about the walls' reconstruction in St. Clare nuns' chronicles *The church and the cloister as well as the adjacent buildings in front of the gate were surrounded by the lower wall since the beginning of the foundation; there were three twice as high round mural towers but only on remained. After the reformation in 1599 by order of the cardinal, Jerzy Radziwiłł, a total reconstruction and rebuilding in the church and in the cloister took place and higher walls were built in order to ensure more security and defense*...[6, p. 86]. The 18th-century chronicler of the Franciscan order Bonawentura Makowski added that the nuns *in vim refusionis expensarum pro eodem muro villam Swiniarsko eidem Episcopo* [to Radziwiłł – O.M.P.] et succesoribus eius resignarunt [44, p. 52]. Since the reconstruction of walls required the costs balanced by selling one of the villages, we cannot only deal with increasing the circumference but also with some more serious works. It is probable that in some places the wall was still wooden since a similar type of construction remained in Stary Sącz, which attracted Z. Beiersdorf's and B. Krasnowolski's attention [12, p. 52]. It is not possible to answer the question without archeological examinations whether the remaining openings in the western part of the walls were the original way of communication with the outer world – the gate, circle and the farm gate. There are still marks in the wall left after the openings were later bricked up (photo).

On the basis of written sources from the turn of the 16th century it is also difficult to evaluate which buildings were originally situated on the north-eastern side of the church. The northern courtyard, where there was not only the chaplain's house but also the cloister gate, was built as a result of the reconstruction ordered by Cardinal Radziwł.

A significant proof of the existence of some form of the walls – a structure on the northern side of the church – is a gatehouse which dates back to the Middle Ages. The 16th-century painting which is in the Loreto

Fig. 10. Monastic church interior – chapel of St. Kinga (former name Virgin Mary) with decorated grille of the 2. half of 17th c. (photo: O.M. Przybyłowicz)

Fig. 11. West elevation of the clock tower, part of monastery walls and west façade of the monastery church after the preservation in 2008 (photo: O.M. Przybyłowicz)

Fig. 12. Interior, north viridarium with the chapelain's house of the 1. half of 17th c. on the left side and part of the monastic church with the sacristy on the right (photo: O.M. Przybyłowicz)

chapel, showing St. Clare with the cloister founder, presents Kinga who is holding a church model with a clearly seen gatehouse having Gothic shapes [30], [33, p. 467], [66, p. 170]. Its actual date of erecting can only be ascertained by archeological examinations. The only thing we know is the fact that the gatehouse was in bad conditions at the beginning of the 17th century and it was actually built from the start at the beginning of the 17th century: *Item turris magna et alta in qua est horologium sonans et campanile, ac porta maior areae claustralis, pariter a fundamentis erecta est Anno 1613, quae deinde Anno 1733 fuit restaurata* [44, p. 52].

The report of the Franciscan general commissar Bonawentura Maresio from 1579 convinces us that still there were no suitable or necessary rooms in the cloister, among others, an infirmary, library, rooms for novices – students [28, p. 156], whereas there was a refectory and separate small cell-houses. Nuns as well as female residents could live in those small cell-houses – they were most often elderly persons who lived near the cloister and co-financed the community in exchange for the possibility to take part in prayers as well as in the everyday life of the nuns. The cardinal forbade to employ any secular servants or girls to help in the cloister; he agreed that only sick or very old nuns could have such maids *with the consent of the older* [abbess – O.M.P.] *in the given chapter who* [maids – O.M.P.] *should stay in the cloister like nuns* [57, card 22].

Jerzy Radziwiłł mentioned the necessity to prepare a separate room for novice nuns and he even defined the place of preparing such a room in details: *Noviciatus or school is supposed to be in the late Czekanowska's room where the sisters – after fulfilling their duties connected with prayers – should spend their time learning or working in the presence of the Lady Mistress; all the younger professed nuns, then novice sisters and those who want to learn in order to become nuns* [57, card. 21]. Apart from the novitiate the St. Clare nuns also fostered little girls which is confirmed by the note in Jury Court files in Nowy Sącz from 1592; Catherine – a miller from Chełmiec, the St. Clare nuns' village – after her father's death took her niece Anna to the cloister *a little girl to be educated in a better way* […] *and in order to serve God, live in godliness and learn good manners ...* [6, p. 89].

It is not possible to specify the percentage of wooden buildings which were situated within the limits of the cloister. In the majority of cloisters which were built until the end of the 16th century or even at the beginning of the 17th century, wood constituted the basic building material [36, p. XVII], [17, p. 99], [37, p. 410]. Bonawentura Makowski, who collected information for his work, stated with surprise that the Sącz cloister …*ac si ante 1600. totum monasterium ligneum fuerit* [44, p. 52]. It is probable that in Stary Sącz – like in the Małopolski Cistercian cloister in Szczyrzyc – the foundations were made of stone, whereas 'the upper parts' were made of wood, which made Cistercian inspector Edmund á Cruce (1580) conclude that the cloister in Szczyrzyc was made of wood [43, p. 25, 27, 29]. Another argument which can prove that the cloister buildings in Stary Sącz were originally mostly made of wood constitutes a note in the cloister chronicle of Barbara Fox: … *uniquely, on lower ambits not all elements were built of stones. According to the custom existing in Poland at that time, oak wood along with bricks and stones were used* [7, p. 91]. However, some of the elements of the original buildings were included in the new plan of the cloister land development during the reconstruction ordered by the bishop of Cracow. This, in turn, is an indication of the existence of buildings in the territory of the enclosure which were totally or partly made of stones.

One of the wings which was included in the new construction was the northern arm of the new cloister adjacent to the church from the southern side. According to the tradition, the cell of Kinga was supposed to be there

as well as a dormitory for the oldest nuns, which was mentioned by Długosz. On the basis of the cloister sources and tradition as well as oral historical sources of the oldest mothers concerning the northern wing, the chronicler Barbara Domicella Fox wrote: […] *near the church St. Mother Kunegunda herself sanctified those accomodations. During her life the cell was called a common dwelling but after her happy death – such a great saint, mother, abbess and benefactress – all nuns, who were her spiritual daughters, tried to make others treat this place with respect and preserve it for posterity* [6, p. 92–93].

In the most southern part of the cloister courtyard next to the circuit wall (nowadays, behind the southern wing of the cloister) there was at least one well. Nearby there was a stream which, according to the tradition, 'was brought' to the territory of the enclosure by Kinga [27, p. 273], [44, p. 53]. The document from 1358 mentioned for the first time the water-course in the territory of the cloister: [...] *quod aqua inter gades domini Pelcze transeat libere et secure super molendinum sororum de Antiqua Sandecz...* [32, v. III, no. 725]. However, the cloister already had its own water-course much earlier – since the moment of foundation. This is proved by the down-stream of the brook Młynówka. The appearance of water in this part of the town was connected with marking the urban arrangement of Stary Sącz, the so-called Owalnica, in the 13th century – several years before the cloister foundation made by Kinga [12, p. 37], [11, p. 138]. The wife of Bolesław Wstydliwy also contributed to the foundation of Stary Sącz, therefore the associations of the down-stream within the territory of the enclosure by the cloister tradition can be easily explained. The Młynówka canal, which flowed across the convent courtyard (in the 19th century it was harnessed into an underground canal) and then across the gallery in the town scarp, fell down on the mill-wheel of St. Clare nuns' grange in Majerz which was described by Długosz [26, p. 339]. The water from the Młynówka was most probably used in the cloister baths which should be situated within the territory of the enclosure. As Barbara Domicella Fox already wrote in her chronicle, in the contemporary cloister's farmyard *apart from two wells, a pond, a canal and stone baths there were no other buildings but one common wood-shed; therefore, the wide open courtyard had a good influence on the nuns'* health [7, p. 91].

About the original appearance of the cloister courtyard and its contemporary reconstruction we can read only in the later historical materials of the chronicler Barbara Fox: *In the middle of the cloister there was a courtyard paved with stones for a very long time; it was later changed into a herb garden.* […] *In about 1604 all the walls leading to the garden were pulled down and walled up and a new ambit with windows was built from bricks and stones…* [7, p. 90].

In the inspection document entitled *About the Cloister* in chapter II which was in fact totally devoted to the issues of reconstruction, Radziwiłł also recommended St. Clare nuns the following: *Each cloister should be coherent in its ambit because cells in different places may become the reason of many bad things: we insist that all young ladies should live in the closed ambit and none of them can live in a dwelling outside the ambit. There can be no accommodation outside the ambit but a covered granary near the gate.* The house of the deceased P. Wronowska should be removed from the cloister [6, p. 92], [57, card 9].

The first contract – not preserved until today – which was concluded between Cardinal Radziwiłł and the bricklayer Jan de Simonim is certified by the information which was written during the inspection: *We made a decision with the bricklayer Jan de Simon, the Italian, that in order to have a good cloister in the ambit in the next year of 1600 one part of the cloister should be built on the western side starting from the church corner in the direction of the river and till the end of the refectory; it should be built according to its project and then, upon my word, the second and the third part will be built* [57, card 9]. The fact that the above mentioned project of the cloister was to be made by Simoni draws our attention. Was an Italian bricklayer and sculptor – *magister artificii* (he was called so in Cracow craft files since 1588 [56, p. 524 and 72]), then the older craftsman (since 1595) who worked previously in the castle in Dębno – the only responsible person for making a technical project as it was suggested in the information written down during the inspection? Simoni may have had some influence on the concept of the cloister reconstruction as one of the distinguished representatives of Cracow craft. It is worth emphasizing that since the turn of the 16th and 17th centuries, the bricklayer's craft examinations included, among others, a master's exam consisting in preparing a drawing on the basis of a pattern or model and then making this model of wood or a plaster cast [23, p. 253]. Simoni made figure decorations using the technique of sgraffiti which were situated in recesses at the top of the building and presented Christ, blessed Salomea, Kinga the founder as well as Francis and Clare.

Fig. 13. Portal of the old monastic chapter house to the enclosure building (photo: O.M. Przybyłowicz)

Fig. 14. Bird's eye view from west to east interior of the monastic church (photo: O.M. Przybyłowicz)

The project of the cloister reconstruction, which in the 16th century became an indispensable element to start building works [2, p. 44–45], was ordered, most probably in Cracow, by the cardinal, Jerzy Radziwiłł himself. The author of the project is anonymous. It is not known who, apart from Simoni, took part in building the cloister. Jan de Simoni stayed with his family in Stary Sącz but there are no sources which would tell us whether he came there with his own group of bricklayers or whether he hired – for the nuns' money – workers and craftsmen from Stary Sącz and the surroundings (for example, from Czorsztyn). The basic building materials such as sand, lime and stones were brought from the surroundings of Stary Sącz and first of all from Czorsztyn [53, card 5r, 7r, 7v, 9r, 9v, 12r, 12v, 14v, 16v]; the abbess along with the convent were obliged – according to the contract – to deliver necessary materials such as stones, lime, sand, bricks, iron and wood to the workshop run by the Italian Simoni. For the works done in the cloister Simoni was supposed to receive 1800 zł and some additional appanage – he held on a lease one of the granges which belonged to the cloister (at Murany) [24, card 152]. The remuneration of the Italian bricklayer was unusual because not everyone who was employed received any money. Liege subjects were obliged to take part in building works of the cloister as it is stated in the lease document of four villages in 1606: *Millers are obliged to take part in building works of the cloister* [6, p. 28]. However, Simoni was supposed to *look after building works himself or through another worker of the same profession in order to watch building works if stones are broken diligently and properly, if bricks are boiled and the floor in the brick-field and lime should be collected on the ground floor as well as on the upper floors* [24, p. 152].

According to the recommendations of the cardinal Jerzy Radziwiłł, during the building works of the cloister, nuns should: *live in two parts of the cloister and in this way they will be separated sedately. They should pull down the old dormitory and build a high dark wall from the church to the corner of the cellar wall; then, they will build the second high wall on the other side from the cellar wall till the cloister wall; there will be a gate in this high wall so that P. Portulana and the Abbess or P. Vicaria can leave and close the main cloister gate when all the workers leave* [57, card 9]. Those recommendations were also repeated by Radziwiłł's successor Bernard Maciejowski in 1606, who signed the second contract with Simoni: *A high and strong wall will be built from the new ambit wall through the cloister garden to the old cloister wall. Afterwards, a high wall will be built on the second side from the corner of the refectory wall to the old cloister wall near the small house where the building stone is dressed; in this high wall there will be a gate so that P. Portulana and the Abbess or P. Vicaria can leave and close the main cloister gate when all the workers leave* [58, p. 37–38].

The cloister – in the face of researchers' examinations – [33, p. 466], [66, p. 169] – was storied and the west wing which was built as the first one was situated *from the corner of the church to the end of the old refectory in the direction of the river*. A new chapter-house was built in the west wing above the inner sacristy adjacent to the original chapter-house; the door led from the chapter-house to the gallery-choir – the oratory. We can still see the difference in the level of those two rooms – you can go down from the gallery-choir to the chapter-house by five stairs (photo). A room with one column was built in this wing or it was rearranged from the old existing one; this room had a vault which was supported by two Renaissance columns with Jonic capitals, whereas in the upper floor dormitories – nuns' cells were situated. According to the concept of Radziwiłł, a new bakery and

Fig. 15. The view of the north elevation of the monastery's church of Holy Trinity (photo: O.M. Przybyłowicz)

kitchen were supposed to be built in the western wing after the completion of building works [56, card 9]. According to the inspection notes of Maciejowski, those rooms were situated in the southern wing which was parallel to the church as well as in the eastern wing (pantry) [58, p. 37–38].

In August 1601, i.e. almost a year after the inspection of Radziwiłł, the first western wing was built – the contents of the decree of his successor Bernard Maciejowski constitute the evidence of this fact: *With God's help, according to the recommendations of our famous predecessor* [Jerzy Radziwiłł – O.M.P.] [58, p. 37–38] the first part of the cloister was already built. Maciejowski concluded a contract for the next building works with Simoni [Jan de Simoni – O.M.P.] which was going to be connected with [...] *building the second part in the direction of the south and the third part in the direction of the east – which is quite a difficult undertaking – in a stable and good way…* [58, p. 37–38]. In the southern wing, which was to be built as the second one, just next to the refectory – which, according to the plans, was to be situated in the eastern wing – there was a bakery; behind the bakery there was a building with a new kitchen inside a part of which was situated outside the cloister walls; the next buildings were supposed to serve as farm buildings.

During building works the bishop, Maciejowski, ordered the nuns to live in *a wooden dwelling which was still there* […]. *The nuns can also prepare one or two old rooms in the cloister ambit for the Lady Abbess and the novice school* [58, p. 37–38].

Building a new refectory as well as dormitory along with cells in the eastern wing – which was going to be built as the third one – must have prolonged till the end of 1604 or even later till 1605 because the third contract with the Italian Simoni was already concluded in March 1604, whereas the fourth one was concluded in November. We can read about this refectory in the cloister chronicle: *A large common refectory indicates a great number of nuns'* […] [6, p. 89].

According to the March contract, this part of the cloister was supposed to be built which: *is in the direction of the east towards the gate (and was completed last year) along the line of the first walls* [24, card

Fig. 16. The view of monastery and church from the east side (photo: O.M. Przybyłowicz)

152r][18]. By studying the detailed instructions concerning the width and the way of laying down the foundations it comes to our knowledge that not only the entrance to the refectory was not completed but – this was included in the first contract – the whole accommodation as well: *There was a ground stove in the refectory next to the wall towards the west and an underground vaulted entrance from the outside of the cloister walls; there will be a 16-ell high vestibule and there will be an entrance to the cellar, to the upper floor and to such an attic as was built in the first part* […]. *The walls must be built on the foundations but not on the embrasures and the soil from both the cellar and foundations must be taken outside the cloister walls* [24, card 152r]. The next '11-ell high' rooms in these wings were to be designed for laic ladies; the second room with the same dimensions and 'with the door to the ambit' had no specified function and finally a granary; under all those three rooms deep cellars were going to be built; *there will be entrances to two rooms from the ambit just near the granary, whereas the door to the vestibule should be situated in front of the refectory*. A bricklayer was also supposed to vault the rooms in front of iron bars 'from the new walls to the corner of the church, which is near the great altar' [24, card 152r]. According to the contract, Jan de Simoni was also supposed to build a portico in front of the gate, whereas a locutory was to be built next to the church *and it should be closed from the cloister and from the outside', then the third dormitory was to be built 'as the first two parts the are already built* of stone [24, card 152r].

New dormitories – the nuns' cells were built on the floors of the western, eastern and southern wings and they were situated along both sides of the corridor in the middle of each wing. The dormitories – although we do not have any direct sources – consisted of many rooms; Cardinal Radziwiłł gave his permission for this earlier and it was in accordance with the Trent council decrees approved by Pope Clemens VIII: *Free cells should be allocated according to seniority and a superior cannot issue another decision* [57, card 28], [61, p. 19]. Barbara Domicella Fox wrote about dormitories in her chronicle: *There are 63 cells in the dormitories upstairs, the floors were made of bricks and painted with different colours… There were no stoves in the cells but only very old fireplaces* [?] [7, p. 87].

According to the third and fourth contract, all the windows and doors should be dressed with *good, strong, thick and grey stone; there should be immediately installed in them the following elements: iron bars, hooks for hinges, door handles, lock blots and hooks for membrane'. Floors in the cellars should be made of large stones, whereas in the dormitory the downstairs and upstairs floor should be made of burnt bricks* [24, card 152r].

When the old dormitory was pulled down, the northern wing (originally the oldest part of the cloister) – which was to be built as the fourth one, [not the eastern wing as W. Szczebak mistakenly defines it, 66, p. 169] – was also reconstructed and became a communication centre on the ground floor connected with the new cloister's eastern and western arms through cloister garths. In the November decree referring to the reconstruction of the part *which begins at the eastern ambit, along the chapel, and ends at the western ambi*t, *we can read that the completed buildings should be stable, strong and in good conditions, according to the earlier design* [24, card 152v]. Further information proves that the wing was unquestionably northern: *The front part of the chapel will be vaulted with bricks and there will be a door there; the confessionale will be situated at the place where there is a window with thick iron bars; there should be an embrasure in the cloister like in the chapel and the chapel should be built in the form of a square* […]. *The third window in the gallery-choir should also have iron bars. Under the gallery-choir there should be a round window like it is done in the sacristy* [24, k. 153r]. The windows of this part of the cloister overlooked the garden; it was also possible to enter into the new dormitory from that wing, i.e. to the cells of nuns. In 1607 the canon Mikołaj Dobrocieski wrote in the inspection document the following information about that part of the cloister: *The confessionale should be corrected by a bricklayer as he was told: there must be a bigger door in the iron bars and a linen cloth must be hung on the bars* [59, card 12].

On the ground floor of the northern wing there was going to be built *a infirmary with a chimney to the stove and with a door from the chapter-house; there will be two stone windows overlooking the south*. […] *The floor upstairs will be made of well burnt tiles*. The chronicler Domicella Fox wrote about the room for sick nuns: *There was a large infirmary which was healthy and comfortable for the sick; there are two adjacent small rooms called dispensaries…* [7, p. 89]. Above the infirmary, some cells were built, however, the contract does not say anything about them; the cloister chronicler wrote that while building the fourth dormitory called the new dormitory, o*ne or two cells were destroyed near the church and on the other eastern side in the old dormitory, which was easy to prove* [7, p. 92].

Simoni was additionally obliged to make corrections in the walls and repair those defects which were not corrected earlier as it was stated in the previous contracts: […] *and there should made a 1.5-ell ditch along the new walls on both sides in order to dry the walls* […] *make corrections in the walls if there are cracks or the wall is damaged* […]. *Next to the wall, a mortuary should be built of stone; all other things should be repaired which had been included in the first contracts but they still have not been repaired and finally, a gable must be made on top of the pantry wall and then covered with dressed stone*. The abbess decided to pay for those repairs after they had been completed, i.e. eight hundred zlotys of the Polish coins; *each zloty at 30 grosz according to the work*

[18] Fragments of contracts were quoted by Z. Beiersdorf and B. Krasnowolski [12, p. 53–54] but with numerous mistakes and quite strange omissions, for example, in the title of the abbess the following words were missing: the Lady in God. I directly use the records.

done as well as overdue payments from the first contracts. Additionally, the Abbess should also give fifty bushels of rye [24, card 153v].

According to S. Tomkowicz measurements were made at the end of the 19th century, the width of corridors in three habitable wings was about four and a half meters, whereas the length of wings was thirty two and a half – thirty six meters [65, p. 229].

The last contract that was concluded with the Italian bricklayer concerned the building of a house for the priests *in the place which was opposite the cloister to the north*, which was to be forty two-ell long and twenty two-ell wide [24, card 164r]. The building works must have been prolonged because there is some information about these works in the next inspection documents from the years 1607 and 1609. According to Canon Hieronim Reczajski, in 1609 the building works were slow and unsatisfactory; in the instruction left in the cloister he stated that *building the house for priests, then the porch and gate in accordance with the contract concluded with the bricklayer should be completed as soon as possible*...[60, card 10].

According to the orders of the next inspector – the Canon of Cracow Mikołaj Dobrocieski who stayed in Stary Sącz in 1607 – *the cloister square should be cleaned. There must be pavements along the walls. It is not allowed to pour liquids outside the walls. It is not allowed to nail or fasten things to the walls nor to put furniture in the ambit* [59, card 12]. This inspector ordered the abbess to *prepare a garden with good soil and then plant apple and pear trees* [59, card 12]. It is most probable that it was the garden which was adjacent to the western wing of the convent and ended near the stream just behind the building for novice nuns. Moreover, St. Clare nuns had their own herb garden which was mentioned by Barbara Domicela Fox [7, p. 90 and 91]: *In the middle of the cloister there was a courtyard since long ago paved with stones which was later changed into a herb garden*'[19].

The last significant change in the cloister arrangement was made as a result of the foundation of the abbess, Zofia Boczkowska – not Anna Lipska as some researchers claim [11, p. 137]. It was the so-called Calvary which was made in the years 1616–1620 in the middle of a small garden (it does not exist any more): with the consent of the superior, Zofia Boczkowska, stone stairs were made in the middle garden in a form of a small chapel. This abbess acquired Jerusalem indulgences for these stairs' [6, p. 90]. The same abbess concluded a contract with the painter Wawrzyniec Cieszyński – the apprentice of famous Dolabello – to make polychromy in the church and also interior decorations: *the church must be painted well and there must be a tent above the great altar, which must be long to the floor and decorated and must look glorious. There must be the Holy Trinity with Angels around on this tent* […]. *There will be Christ's face in the frame above the Crucifix and on both sides of His face there will be signs or instruments of tortures held by Angels. Below there will be St. Peter and St. Paul opposite each other. In empty places there will be upholstery below paintings both in the small and big gallery-choir* [24, card 231r]. At that time the church had Medieval polychromy – probably from the 14th century. Cieszyński's work of art has not survived to the present (nowadays we can only see uncovered fragments); it is now covered with polychromy which was made at the end of the 17th century by Baltazar Fontana [11, p. 136] and then by Feliks Deryssarz in 1779 [11, p. 136], [30], [65, p. 173].

During the next centuries – until today – there have been no other significant changes in the architecture of the cloister; only the kitchen was reconstructed in the middle of the 18th century [12, p. 93]. There were also some inconsiderable changes in the church construction – in the middle of the 17th century a one-storied addition to the building was built on the northern side of the presbytery which was to serve as gallery-choir with organs, whereas one hundred years later this additional building was extended and changed into the sacristy [12, p. 55]. On the southern side of the church over the so-called confessional a Loreto chapel was built in the first half of the 17th century, where the painting in the altar was supposed to be founded by the bishop of Cracow Andrzej Lipski who was an uncle of the abbess Anna Lipska (he died in 1631) [6, p. 92]. Preservation works inside the church – a part of which was the above mentioned polychromy by Deryssarz – were carried out after a fire in 1764. The fire destroyed the roofs of the church and partly of the cloister and the falling chimneys made holes in the vaults; the Loreto chapel was also largely damaged [6, p. 103]. The repairs started during the reigns of the abbess Katarzyna Leńczowska (she died in 1767) – she brought bricklayers and carpenters from Hungary [6, p. 103–106] – and were continued by her successor Katarzyna Pskurska (she reigned in the years 1767–1781) and then by Katarzyna Skrzyńska (1781–1784).

Translated by Bogusław Setkowicz

[19] It was only after the annulment decree in 1782 and after the liquidation of the Majerz grange when some buildings situated in the courtyard were transformed into farm buildings where live-stock was kept. The present big garden, which is at the eastern part of the church and cloister courtyard and which is shaped in the form of terraces to the railway, was created at the turn of the 19th century. There is also a small garden between the walls and the western wing. Thanks to sister Salomea, the archivist, for all the information.

References

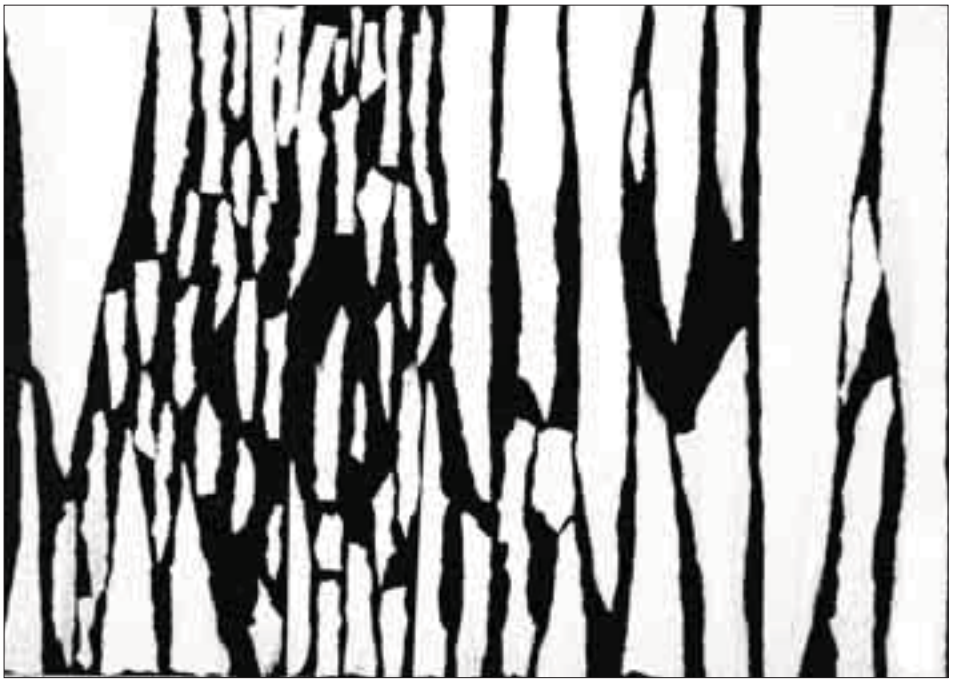
[1] *Akta grodzkie i ziemskie z czasów Rzeczypospolitej Polskiej z archiwum tzw. bernardyńskiego we Lwowie*, vol. 1, vol. 4, (ed.) X. Liske, Lwów 1868, 1873.

[2] Alberti L.B., *Dziesięć ksiąg o sztuce budowania*, (ed.) P. Biegański, Warszawa 1960.

[3] Andrzejewska A., Kajzer L., *Badania zespołu podominikańskiego w Brześciu Kujawskim,* [in:] J. Olczak (ed.), *Materiały z I Sesji Naukowej Uniwersyteckiego Centrum Archeologii Średniowiecza i Nowożytności*, Toruń 1995, p. 127–149.

[4] Andrzejewski A., *Opactwo cysterskie w Rudach w świetle badań archeologiczno-architektonicznych przeprowadzonych w latach 1992–1993*, [in:] A. Pobóg-Lenartowicz, Derwich M. (eds.), *Klasztor w kulturze Polski średniowiecznej*, Opole 1995, p. 373–388.
[5] *Architektura gotycka w Polsce*, vol. 2, parts 1–3, (eds.) T. Mroczko, M. Arszyński, Warszawa 1995.
[6] *Arendy klasztoru starosądeckiego w XVI–XVII wieku*, (ed.) J. Sygański, Lwów 1904.
[7] Barbara Domicella Fox, *Pamiętniki*, Archiwum klasztoru klarysek w Starym Sączu, sig. Rk/b-4.
[8] Bazielich A., *Kardynał Jerzy Radziwiłł (1556–1600). Wybrane zagadnienia*, [in:] M. Żywczyński, Z. Zieliński (ed.), *Studia historyczne*, vol. 1, (Rozprawy Wydziału Historyczno-Filozoficznego TN KUL, 34/1), Lublin 1968, p. 163–265.
[9] Bazielich W., *Klaryski starosądeckie a sztuki piękne w XVII i XVIII w.*, „Nasza Przeszłość" 1966, vol. 25, p. 179–220.
[10] Beiersdorf Z., Kornecki M., Krasnowolski B., *Sztuka Starego Sącza*, [in:] H. Barycz (ed.), *Historia Starego Sącza od czasów najdawniejszych do 1939 roku*,, Kraków 1979, p. 304–340.
[11] Beiersdorf Z., Krasnowolski B., *Architektura kościoła i klasztoru PP. klarysek w Starym Sączu*, „Currenda" 1981, 1431, p. 133–138.
[12] Beiersdorf Z., Krasnowolski B., *Stary Sącz – zarys historii rozwoju przestrzennego*, Kraków 1985.
[13] Białoskórska K., *Czy o wyborze miejsca na założenie opactwa cysterskiego decydowały zawsze wskazania reguły? Między teorią a rzeczywistością*, [in:] J. Strzelczyk (ed.), *Cystersi w kulturze średniowiecznej Europy*, Poznań 1992, p. 149–179.
[14] Białoskórska K., *Klasztory a zagadnienia kształtowania się lokalnych polskich środowisk i tradycji artystycznej w XIII stuleciu*, [in:] M. Derwich, A. Pobóg-Lenartowicz (ed.), *Klasztor w społeczeństwie średniowiecznym i nowożytnym*, Opole–Wrocław 1996, p. 311–343.
[15] Biernacki A., *Speculum Minorum*, Cracovia 1660, Archiwum Franciszkanów w Krakowie msz p. sig. E I 327.
[16] Bihl P. M., *Statuta generalia Ordinis edita in Capitulo generalibus celebratis Narbonae an. 1260*, *Assisi an. 1279 atque Parisiis an. 1292*, „Archivum Franciscanum Historicum" 1941, vol. 34, fasc. I–II, p. 13–94.
[17] Borkowska M., *Życie codzienne polskich klasztorów żeńskich w XVII i XVIII wieku*, Warszawa 1997.
[18] *Bullarium Poloniae*, vol. 1–3, (ed.) I. Sułkowska-Kuraś, S. Kuraś, Romae–Lublin 1982–1988.
[19] Chudziakowa J., *Zespół architektury romańskiej w Strzelnie w świetle najnowszych badań*, „Acta Universitatis Nicolai Copernici", Archeologia, vol. 13, Toruń 1987, p. 5–27.
[20] Desbonnets T., *Na szlakach św. Franciszka z Asyżu. Przewodnik po sanktuariach franciszkańskich*, Kraków–Asyż 1981.
[21] Domańska H., *Klasztor benedyktynek w Żarnowcu na Pomorzu*, „Kwartalnik Architektury i Urbanistyki" 1973, vol. 18, p. 285–310.
[22] Domasłowski J., *Kościół i dawny klasztor cysterek w Chełmnie*, Warszawa–Poznań–Toruń 1983.
[23] Gruszecki A., *Projekt a ostateczny kształt detalu architektonicznego w XVI–XVII wieku*, [in:] Z. Bania et al. (ed.), *Podług nieba i zwyczaju polskiego: studia z historii architektury, sztuki i kultury ofiarowane Adamowi Miłobędzkiemu*, Warszawa 1988, p. 253–257.
[24] *Inventarium bonorum conventus in Antiqua Sandecz*, Archiwum Klasztoru Klarysek w Starym Sączu, sig. Gr/a-1.
[25] *Ioannis Dlugosii, Annales seu cronicae inlicti Regni Poloniae*, lib. VII–VIII, Varsaviae 1975.
[26] *Ioannis Dlugosii, Liber beneficiorum dioecesis Cracoviensis*, vol. I–III, [in:] *Opera omnia*, (ed.) A. Przezdziecki, vol. 8–10, Kraków 1863–1864.
[27] *Ioannis Dlugosii, Vita beatae Kunegundis*, [in:] *Opera omnia*, vol. I, (ed.) I. Polkowski, Ż. Pauli, Kraków 1887, p. 183–336.
[28] Karwacki A., *Materiały do historii konwentów franciszkańskich Prowincji Polskiej*, vol. 9, Bd. Kraków, typescript Essen–Gdańsk 1999, Archiwum Franciszkanów w Krakowie sig. E I 7.
[29] Karwacki A., *Materiały do historii konwentów OO. Franciszkanów w Prowincji Polskiej i częściowo w Prowincji Ruskiej*, vol. 10, bd, Kraków, typescript Watykan 2000, Archiwum Franciszkanów w Krakowie, sig. E I 9.
[30] *Katalog zabytków sztuki w Polsce*, vol. 1 Województwo krakowskie, (ed.) J. Szablowski, Warszawa 1953, p. 328–329.
[31] Kiryk F, *Miasto średniowieczne*, [in:] H. Barycz (ed.), *Historia Starego Sącza od czasów najdawniejszych do 1939 roku*, Kraków 1979, p. 39–75.
[32] *Kodeks dyplomatyczny Małopolski*, vol. 1–4, (ed.) F. Piekosiński, Kraków 1876–1905.
[33] Kornecki M., *Stary Sącz, Kościół pw. św. Trójcy, klasztorny PP. klarysek*, „Rocznik Diecezji Tarnowskiej za rok 1972", Tarnów 1971, p. 459–470.
[34] Kornecki M., *W kręgu sztuki klasztoru starosądeckich klarysek*, „Currenda" 1981, 1431, p. 139–146.
[35] Krasnowolski B., *Kraków, Zawichost, Nowe Miasto Korczyn, Skała, Sącz: plany urbanistyczne jako źródło do badań nad epoką Bolesława Wstydliwego, Błog. Salomei, Św. Kingi*, „Nasza Przeszłość" 2004, vol. 101, p. 149–195.
[36] *Kroniki Bernardynów poznańskich*, (ed.) S.B. Tomczak, J. Wiesiołowski, Poznań 2002.
[37] Kurowski B.B., *Franciszkanie w Gliwicach*, „Rocznik Muzeum w Gliwicach" 2000, vol. 17, p. 410–440.
[38] Kutzner M., *Architektura średniowiecznych klasztorów i kościołów franciszkańskich w Polsce*, „Acta Universitatis Nicolai Copernici", Zabytkoznawstwo i Konserwatorstwo XIII, Nauki Humanistyczno-Społeczne, no. 176, 1989, p. 3–46.
[39] Lenkiewicz T., *Wyniki obserwacji wykopów przypadkowych i archeologicznych badań sondażowych prowadzonych na terenie klasztoru norbertanek na Zwierzyńcu*, „Zeszyty Naukowe Uniwersytetu Jagiellońskiego", no. 51, Prace Archeologiczne, 1962, no. 4, p. 157–166.
[40] Łuszczkiewicz W., *Architektura najdawniejszych kościołów franciszkańskich w Polsce*, „Sprawozdanie Komisji do Badania Historii Sztuki w Polsce" 1891 [1899], vol. 4, no. 4, p. 139–182.
[41] Łuszczkiewicz W., *Sprawozdanie z wycieczki naukowej w okolice Sącza i Biecza*, „Sprawozdanie Komisji do Badania Historii Sztuki w Polsce" 1889, vol. 4, no. 1, col. LXXVII–XCII, nuns of the Order of the St ClareLXXXIV–LXXVI.
[42] Łużyniecka E., *Architektura klasztorów cysterskich: filie lubiąskie i inne cenobia śląskie*, Wrocław 2002.
[43] Łużyniecka E., Marszalska J.M., *Szczyrzyc*, Wrocław 2005.
[44] Makowski B., *Thesaurius Provinciae Poloniae*, Cracovia 1764, Archiwum Franciszkanów w Krakowie.
[45] Małachowicz E., *Książęce rezydencje, fundacje i mauzolea w lewobrzeżnym Wrocławiu*, Wrocław 1994.
[46] Małachowicz E., *Średniowieczne budowle jednofilarowe na Śląsku*, „Prace Naukowe Instytutu Architektury, Sztuki i Techniki Politechniki Wrocławskiej" no. 7, Monografie no. 6, Wrocław 1973.
[47] *Monasticon Cisterciense Poloniae*, (ed.) A. M. Wyrwa,J. Strzelczyk , K. Kaczmarek, vol. 1–2, Poznań 1999.
[48] Moulin L., *Życie codzienne zakonników w średniowieczu*, trans. E. Bąkowska, Warszawa 1986.
[49] Młynarska-Kaletynowa M., *W sprawie finansowania budowy klasztoru cysterek trzebnickich w XIII wieku*, [in:] A. Abramowicz, J. Maik (ed.), *Budownictwo i budowniczowie w przeszłości*, Łódź 2002, p. 281–287.
[50] Nawracki M., *Późnośredniowieczne i nowożytne szkło okienne z zespołu poklasztornego norbertanek w Strzelnie, woj. bydgoskie,* [in:] J. Olczak (ed.), *Archaeologia Historica Polona*, vol. 2, *Z badań nad dziejami klasztorów w Polsce*, Toruń 1995, p. 211 – 260.
[51] Pencakowski P., *Architektura zakonu św. Franciszka w Małopolsce w epoce średniowiecza – wybrane zagadnienia*, [in:] E. Mańkowska (ed.), *Kościół i klasztor franciszkański w Krośnie*, Krosno 1998, p. 21–42.
[52] Pencakowski P., *Gotyckie kościoły zakonu Św. Franciszka w Starym i Nowym Sączu*, „Kwartalnik Architektury i Urbanistyki" 1991, no. 2, vol. 36, p. 83–102.
[53] *Percepta 1602–1604*, Archiwum Klasztoru Klarysek w Starym Sączu, sig. D.W.1a.
[54] Pietrzykowska J., *Próba rekonstrukcji budowy klasztoru w oparciu o źródła archeologiczno-architektoniczne. Materiały sprawozdawcze z badań zespołu pobenedyktyńskiego w Mogilnie*, no. 3, „Biblioteka Muzealnictwa i Ochrony Zabytków" series B, vol 62, Warszawa 1983, p. 7–25.

[55] *Piotra Crescentina Księgi o gospodarstwie i o opatrzeniu rozmnażania rozlicznych pożytków każdemu stanowi potrzebne*, trans. A. Trzycieski, Kraków 1549, p. 488–491.
[56] *Jan de Simoni*, (ed.) K. Mikocka-Rachubowa, [in:] *Polski Słownik Biograficzny*, vol. 37, Warszawa–Kraków 1996–1997, p. 524–525.
[57] *Reformatia od Ieo Xti M. X.a Jerzego Kardynała Radziwiłła biskupa krakowskiego, pannom klasztoru starosądeckiego zostawiona roku 1599 dnia X sierpnia*, Archiwum Klasztoru Klarysek w Starym Sączu, sig. Rf/a-1.
[58] *Reformatia biskupa Maciejowskiego dana w Starym Sączu dnia 20 sierpnia 1601 roku*, Archiwum Klasztoru Klarysek w Starym Sączu, sig. Rf/a-2.
[59] *Reformatya klasztoru starosądeckiego przez X. Mikołaja Dobrocieskiego kanonika krakowskiego visitatora Wielebnej w P. Bodze Hewie Gostwickiej Ksieniej zostawiona dnia 1 Septembris 1607*, Archiwum Klasztoru Klarysek w Starym Sączu, sig. Rf/a-3.
[60] *Reformatya klasztoru starosandeckiego przez X. Hieronima Reczajskiego i Xa Piotra Skydzieńskiego zawichowskiego archidiakony visitatory Wielebnej w Panu Bogu Pannie Ewie Gostwickiej Ksieniej zostawiona 11 Maja 1609*, Archiwum Klasztoru Klarysek w Starym Sączu, sig. Rf/a-4.
[61] *Reguła Zakonu Świętej Klary, z tekstu łacińskiego przełożył na język polski i odnośnymi dekretami oraz rezolucyami Stolicy Świętej opatrzył ks. Józef Bąba dziekan tarnowskiej kapituły katedralnej, komisarz biskupi PP. Klarysek w Starym Sączu*, Stary Sącz–Tarnów 1911.
[62] Rozpędowski J., *Opactwo pań cysterek w Trzebnicy,* [in:] J. Strzelczyk (ed.),*Historia i kultura cystersów w dawnej Polsce i ich europejskie związki. Materiały konferencji naukowej zorganizowanej przez Instytut Historyczny UAM w Błażejewku k/Poznania (22–24 maj 1985 r.)*, Poznań 1987, p. 263–281.
[63] Rutkowska-Płachcińska A., *Sądeczyzna w XIII i XIV wieku-przemiany gospodarcze, społeczne*, Wrocław–Warszawa–Kraków 1961.
[64] Soukupová H., *Anežský kláštr v Pradze*, Praha 1989.
[65] *Stanisława Tomkowicza Inwentarz zabytków powiatu sądeckiego*, Z rękopisów Autora wydali i własnymi komentarzami opatrzyli Piotr i Tadeusz Łopatkiewiczowie, Kraków 2007.
[66] Szczebak W., *Z dziejów kościoła i klasztoru oraz z mecenatu artystycznego starosądeckich klarysek*, „Tarnowskie Studia Teologiczne", 1986, vol. 10, p. 165–178.
[67] *Sztuka polska romańska i przedromańska do schyłku XIII w*., (ed.) Walicki M., Warszawa 1975.
[68] *Sztuka ziemi krakowskiej*, T. Chronowski, M. Kornecki, Kraków 1982.
[69] Szydłowski T., *Architektura kościołów franciszkańskich w Polsce piastowskiej*, [in:] *Święty Franciszek z Asyżu. Zbiór odczytów*, Kraków 1928, p. 153–171.
[70] Śnieżyńska-Stolot E., *Odkrycie klasztoru klarysek i grobu Elżbiety Łokietkówny na Węgrzech*, „Biuletyn Historii Sztuki", 1979, vol. 41, no. 1, p. 21–26.
[71] Świechowski Z, *Architektura sakralna XIII–XV w*., [in:] Z. Świechowski (ed.), *Wrocław, jego dzieje i kultura*, Warszawa 1978, p. 91–131.
[72] Świechowski Z., *Architektura cystersów w Polsce, Czechach i na Węgrzech*, [in:] A.M. Wyrwa, J. Dobosz (ed.), *Cystersi w społeczeństwie Europy Środkowej: materiały z konferencji naukowej odbytej w klasztorze OO. Cystersów w Mogile z okazji 900 rocznicy powstania Zakonu Ojców Cystersów Poznań–Kraków–Mogiła 5–10 października 1998*, Poznań 2000, p. 54–78.
[73] Świszczowski S., *Materiały do dziejów kościoła klasztornego SS. Klarysek w Starym Sączu*, „Rocznik Sądecki" 1982, vol. 17, p. 291–297.
[74] Tomkowicz S., *Przyczynki do Historyi Kultury Krakowa w pierwszej połowie XVII wieku*, Lwów 1912, col. 121–124.
[75] Witkowska A., *Kinga*, [in:] *Polski słownik hagiograficzny*, (ed.) A. Witkowska, Poznań 1999, p. 380–394.
[76] Witkowska M.H., *Kinga, Kunegunda*, [in:] *Hagiografia Polska. Słownik bio-bibliograficzny*, vol. 1, Poznań 1971, vol. 2, p. 773–779.
[77] Wyrobisz A., *Budownictwo murowane w Małopolsce w XIV i XV w*., „Studia z dziejów Rzemiosła i Przemysłu", vol. 3, Wrocław–Warszawa–Kraków 1963.
[78] Załęski S., *Ś. Kinga i jej klasztor starosądecki*, Lwów 1892.
[79] *Z badań nad średniowieczną architekturą Kujaw i Wielkopolski Wschodniej*, (ed.) J Chudziakowa., „Biblioteka Muzealnictwa i Ochrony Zabytków", p. B. vol. 86, Warszawa 1990.
[80] *Zbiór dokumentów małopolskich*, parts 1–8, (ed.) S. Kuraś, I. Sułkowska – Kuraś (from part 4), Kraków–Wrocław 1962–1975.
[81] Ziółkowski M., *Badania archeologiczno-architektoniczne klasztorów cysterek w Polsce*, [in:] A. Wyrwa, M., J. Dobosz (ed.), *Cystersi w społeczeństwie Europy Środkowej: materiały z konferencji naukowej odbytej w klasztorze OO. Cystersów w Mogile z okazji 900 rocznicy powstania Zakonu Ojców Cystersów Poznań–Kraków–Mogiła 5–10 października 1998*, Poznań 2000, p. 549–564.
[82] Żurek M., *Czy istniał modelowy kościół benedyktyński? Benedyktyni a architektura Polski wczesnośredniowiecznej,* [in:] *Klasztor w kulturze średniowiecznej Polski*, (ed.) A. Pobóg-Lenartowicz, M Derwich., Opole 1995, p. 333–364.
[83] *Żywot Świętej Kingi księżnej krakowskiej*, (ed.) B. Przybyszewski, Tarnów 1997.



Drawn by the M. Pietras

Architectus

2008
Nr 2(24)

Aleksandra Paradowska*

Sensible Hospital

On the competition for the extension project of the National Parturient Clinic in Poznań[1]

Feeding shall be effected with the use of a kitchen whose location
should not impede the provision of meals to the patients,
and should not be too far from them;
on the other hand, the odors from the kitchen should not bother the patients,
and above all the delivery of kitchen supplies,
should not disturb the patients and prevent the garden from getting untidy [7, p. 363]

There were many architectural design competitions in the interwar times. They usually referred to the biggest and most prestigious construction undertakings; residential projects, ministerial buildings, offices and institutions, urban planning initiations and churches. Although very often the winning projects were not implemented, their publishing with comments in the professional press was a significant element in the discussion on the shape of the 'new' Polish architecture. In the scope of hospital building the competitions which were announced were often closed competitions; the invitation itself to participate in the competition was in fact an appreciation of the architect's achievements and his position in the professional community.

Three closed competitions for the design of hospital buildings were announced at that time in the Poznań Province. In 1927, competitions were announced for the design of a hospital in Bydgoszcz and a plan of extension of the National Parturient Clinic in Poznań. In 1938, another competition was held for the design of the Neurological and Psychiatric Clinic in Poznań. Although the competition boards managed to select in their opinion the most appropriate proposals, the projects were not executed in full in any of the three cases. The only hospital which was completed within 10 years was the hospital in Bydgoszcz designed by Jadwiga Dobrzyńska and Zygmunt Łoboda[2] (Fig. 1). The Parturient Clinic in Poznań was extended according to the design by Marian Pospieszalski only in the second half of the 1930s and still to a very limited extent (Fig. 2). The last of the planned buildings – the Neurological and Psychiatric Clinic, also according to the design by Pospieszalski, was never built due to the war.

The common elements of the three planned buildings of the hospitals in Greater Poland were determined by the ideas which were supposed to be embodied in the competition designs. They included the postulates of then applicable principles expressed in the professional literature regarding hospital buildings. In general their essence is expressed in the introductory quotation from the conditions of the competition for the extension of the National Parturi-

Fig. 1. Jadwiga Dobrzyńska, Zygmunt Łoboda, City Hospital in Bydgoszcz, 1928 (photo: A. Paradowska)

* Intitute of the History of Art, Adam Mickiewicz University.

[1] Also other names were interchangeably used: Clinic for Women, Maternity Clinic, Gynecology and Maternity Unit. So far the issue of the competition for the extension of the Poznań Clinic has not been written about in greater detail in the literature on the subject. This subject has been brought up recently only by Hanna Brendel in her article regarding Poznań hospitals from the turn of the 19th and 20th centuries [5].

[2] In the Public Archives in Bydgoszcz there is a detailed design of the hospital (File no. 204, 857) signed by architect Raczkowski (Building Adviser for the City of Bydgoszcz), created most likely on the basis of the winning design of the architects.

Fig. 2. View of the Clinic at present from the corner of Polna and Bukowska Street. Wing designed by Marian Pospieszalski built in the years 1933–1939 from Bukowska Street encompassing four window axes from the right; annexed to the section designed by F. Teubner which was built in the years 1912–1913 (photo: A Paradowska)

ent Clinic at Polna Street in Poznań. The competition which was discussed in detail in the "Architektura i Budownictwo" ("Architecture and Building") magazine became famous not only in the area of Greater Poland but in the whole country.

The history of the competition for the extension of the hospital in Poznań and the submitted projects should be viewed first of all in reference to the international architectural solutions of Polish hospitals and stylistic trends of the times. The most important problem of this seemingly obvious context was the coexistence of modern functional solutions, taking into account the patients' comfort, and the exterior of the building. The subject of this paper is primarily the competition proposals and preserved documents. The constant changes of the functions of the hospital interiors, which are inherent to their nature, prevented the complete inclusion of the fragment of the remodeling which was implemented in the scope of the analysis.

History of the competition

The competition for the extension of the National Parturient Clinic in Poznań was an initiative of the District Governor Office (local government office in the Province) which was in charge of most public buildings, including hospitals on the territory of the whole Province. The conflict which preceded the official announcement of the competition testifies to the great significance of the future construction for the architectural community in Poznań. The planned extension was a large scale commission and an unusually prestigious investment. The official pragmatics indicated that the Building Department at the District Governor Office was in charge of the design, however, the exceptional character of the project ignited interest of the community at the same time.

Architect Marian Pospieszalski[3], as Head of the Building Department at the District Governor Office, supervised and modernized the buildings which were under his control due to his work duties. Consequently, it was within his competence to extend the Parturient Clinic. Already in the first half of 1926 Pospieszalski began to prepare plans according to the guidelines presented by Professor Bolesław Kowalski who was the Clinic Director at that time [2]. It turned out, however, that the project interested also Adam Ballenstedt, an influential architect who had his own highly renowned studio in Poznań. Commissioning the project contrary to established rules without reference to the Building Department was supported by Vice-Governor Julian Hubert[4]. As a result, Marian Pospieszalski, fearing that Ballenstedt would get the commission, suggested a closed architectural competition, which would give the possibility of a more objective evaluation of the designs exposed to public confrontation.

Pospieszalski already had experience in designing hospitals and sanatoria. As an assistant at the University of Technology in Charlottenburg he participated in the modernization of Berlin Charité Hospital. While performing his regular duties he also modernized the hospital buildings under the control of the District Governor Office[5].

The official resolution on the competition was adopted by the Province Department on January 26, 1927. The official bulletin of the District Governor Office [9, p. 37] says that the group of architects invited to the competition included Adam Ballenstedt, Stefan Cybichowski and Marian Andrzejewski from Poznań as well as Witold Minkiewicz from Lvov and Czesław Przybylski from Warsaw[6] and *the*

[3] M. Pospieszalski (1876–1952) – graduate of the University of Technology in Berlin-Charlottenburg. In the interwar time author of numerous projects in Poznań and Greater Poland, including: dairy and milk school in Września, Social Insurance Institution sanatorium in Inowrocław, Prostheses Factory in Poznań, residential houses and villas.

[4] In the 1930s, Ballenstedt designed a villa at Ostroroga Street no. 1 for Julian Hubert.

[5] They included: Psychiatric Compound in Kościan, Gniezno and Owińska as well as sanatoria in Kowanówko and Smukała. Later he was the author of the project of psychiatric clinic at Poznań Citadel which was not executed (1st place in the closed competition), Prostheses Factory at Przemysłowa Street in Poznań, sanatorium in Inowrocław.

[6] A. Ballenstedt (1880–1942) – student of the University of Technology in Berlin-Charlottenburg, completed studies in Karlsruhe, in the years 1919–1932 member of the District Governor Office Council. Author of a number of buildings in Poznań such as Ursuline Boarding Junior High School at Niepodległości Avenue, Poznań Electric Railroad compound of houses at Słowacki, Rej and Kochanowski Streets, building of the University of Economics at Niepodległości Avenue.
S. Cybichowski (1881–1940) – graduate of the University of Technology in Berlin-Charlottenburg; his major projects for Poznań included: extensions of the Fair Grounds, Trade School at Śniadeckich Street, Dominicans Monastery at Libelta Street and numerous churches in Poland.
M. Andrzejewski (1882–1962) – graduate of the University of Technology in Berlin-Charlottenburg; designed a number of churches and industrial buildings in Greater Poland; in Poznań he was the author of the Social Insurance Institution building and the H. Cegielski company administration building.
W. Minkiewicz (1880–1961) – professor in the Faculty of Architecture at the University of Technology in Lvov; e.g. author of extension of the University of Technology in Lvov and convalescent home in Krynica.
Cz. Przybylski (1880–1936) – graduate of the University of Technology in Warsaw; in Warsaw he designed e.g. the Polish Theater, Ministry of Military Affairs, Railroad Station.

senior national adviser Marian Pospieszalski, building officer at the District Governor Office whose design was also subject to evaluation by the competition jury, was allowed to participate in the competition as a unofficial competitor [9]. In fact then the architect did participate in the competition but he was in a privileged position due to the fact that his project had been prepared earlier.

The design submission deadline with coded names was set as April 1, 1927. The Province Department elected a college of seven judges including District Governor (or possibly his Deputy)[7], Clinic Director – Professor Bolesław Kowalski (or "consultant of the clinic"), architects from Poznań: consultant Kazimierz Ruciński, consultant Roger Sławski and from Warsaw: Professor Karol Jankowski, Professor Trzciński and the President of Bydgoszcz Doctor Bernard Śliwiński. Optionally, architect Tadeusz Tołwiński from Warsaw was appointed as an alternate to one of the members of the competition board (with the exception of the first two). The members of the competition college primarily included renowned architects[8] and representatives of all relevant parties, the District Governor Office and the clinic itself.

The future designs were given specific requirements provided in the competition regulations. The basic requirement was the extension of the hospital by 150 beds with necessary utility rooms, medical treatment and operating rooms. The previous 200 beds were completely insufficient. Additionally, it was necessary to include teaching rooms in the new building of the clinic whose lack had been painfully evident. Furthermore, because of the small area of operating and treatment rooms in the old crowded building it was impossible for the medical students to watch the performance of the procedures. Although theoretically the hospital was supposed to be extended by the number of beds lower than the existing number, in fact the new part, due to the existence of a lot

Fig. 3. Marian Pospieszalski, clinic extension project, aerial view, 1927 [7, p. 363]

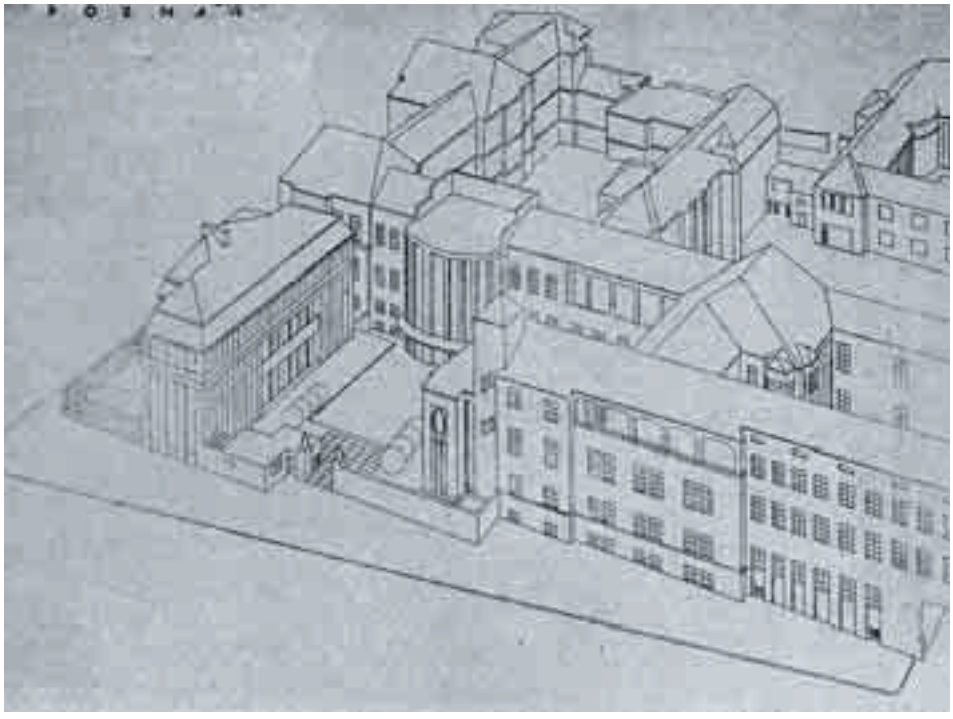


Fig. 4. Czesław Przybylski, clinic extension project, aerial view, 1927 [7, p. 368]

[7] Ludwig Begale took the position of District Governor in 1923.

[8] The group of architects included: K. Ruciński (1873–1945) Director of the Land Building Department at the municipality office and its studio, R. Sławski (1871–1963) Head of the Building Department at Province Office, after retiring in 1927 director of works at Poznań Fair Grounds, Professor K. Jankowski (1868–1928) and Professor T. Tołwiński (1887–1951) – lecturers at the University of Technology in Warsaw and architect-constructor G. Trzciński. B. Śliwiński (1883–1941) a lawyer who since 1922 held the position of President of Bydgoszcz.

Fig. 5. Adam Ballenstedt, clinic extension project, aerial view, 1927 [7, p. 373]

of auxiliary facilities, had to occupy a greater area that the area of the existing buildings. This relation was clearly visible in the submitted drawings where the bolder lines indicate old and new wings.

The most important condition, however, was the issue of adjustment to the needs of modern medical treatment and taking into account the comfort of the patients which was clearly emphasized in the competition regulations. The layout of the utility rooms as well as the classrooms for medical students was supposed to be organized in a possibly least disturbing way for the patients and the treatment process. The location of the apartments for the personnel necessary in the new building was according to the competition regulations of secondary significance. Their *location was to prevent their indirect proximity to the parturients in the clinic* [7, p. 364], meaning the distance between the patients and the doctor or nurse should not be too big.

According to the competition requirements the extension was to occupy the large plot of land behind the existing building between Bukowska and Jackowski Streets adjoining the residential houses at those streets[9].

The competition jury evaluated the designs by awarding points and each of the designs was evaluated in respect to the following: 1) medical aspect, 2) economic aspect, 3) location, 4) layout and program, 5) architecture [7, p. 368]

The results of the competition were announced on April 10 and 11, 1927. The competition college decided that Marian Pospieszalski would be awarded the first prize (Fig. 3). The design by Czesław Przybylski (Fig. 4) was awarded the second prize, stressing how hard it must have been to overcome the difficulty connected with the fact of not being a local architect. The third prize went to Adam Ballenstedt (Fig. 5). The next places in accordance with the number of collected points were taken by the following projects: Witold Minkiewicz, Stefan Cybichowski and Marian Andrzejewski [9, p. 37].

The jury considered the 'official' project by Marian Pospieszalski ready for detailed preparation, after taking a few reservations into consideration. Most likely the competition board found that the main advantage of the architect's proposal was that it most closely met the specific requirements of the competition which had already been known to the architect from the letters of the Clinic Director – Professor Kowalski. Indeed, the first criterion of the evaluation of the submitted works was the "medical aspect".

[9] The area of the plot was cir. 19,000 m^2 (1.9 ha). A part of that area was still to be purchased from Mr. Wollheim. There was a house with a garden located on that land; letter of Professor Kowalski to Marian Pospieszalski, [2].

Functional Solutions

The proposal of Marian Pospieszalski included a huge building with two internal courtyards and one external courtyard from Bukowska Street. Both the shape and style of the newly designed wings of the clinic were adjusted to the already existing buildings.

For aesthetic reasons the facade from Bukowska Street served as the main façade (Fig. 6). The main entrance was located, however, in the old part between the buildings because of the functionality of the new clinic (Fig. 7) and because according to the competition requirements the utility rooms (kitchens and laundry rooms) were separated from the space for treating patients (operating rooms, labor wards). The architect himself explained this solution: *The middle of the tra-*

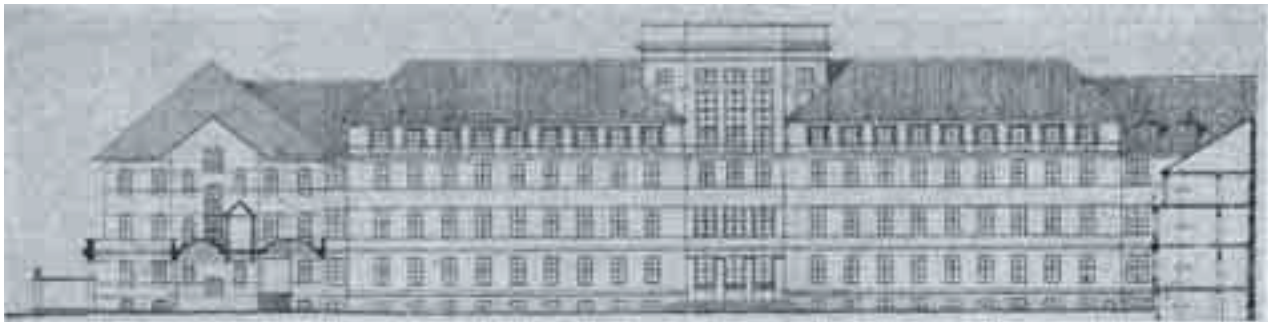


Fig. 6. Marian Pospieszalski, clinic extension project, view from Bukowska Street, 1927 [7, p. 365]

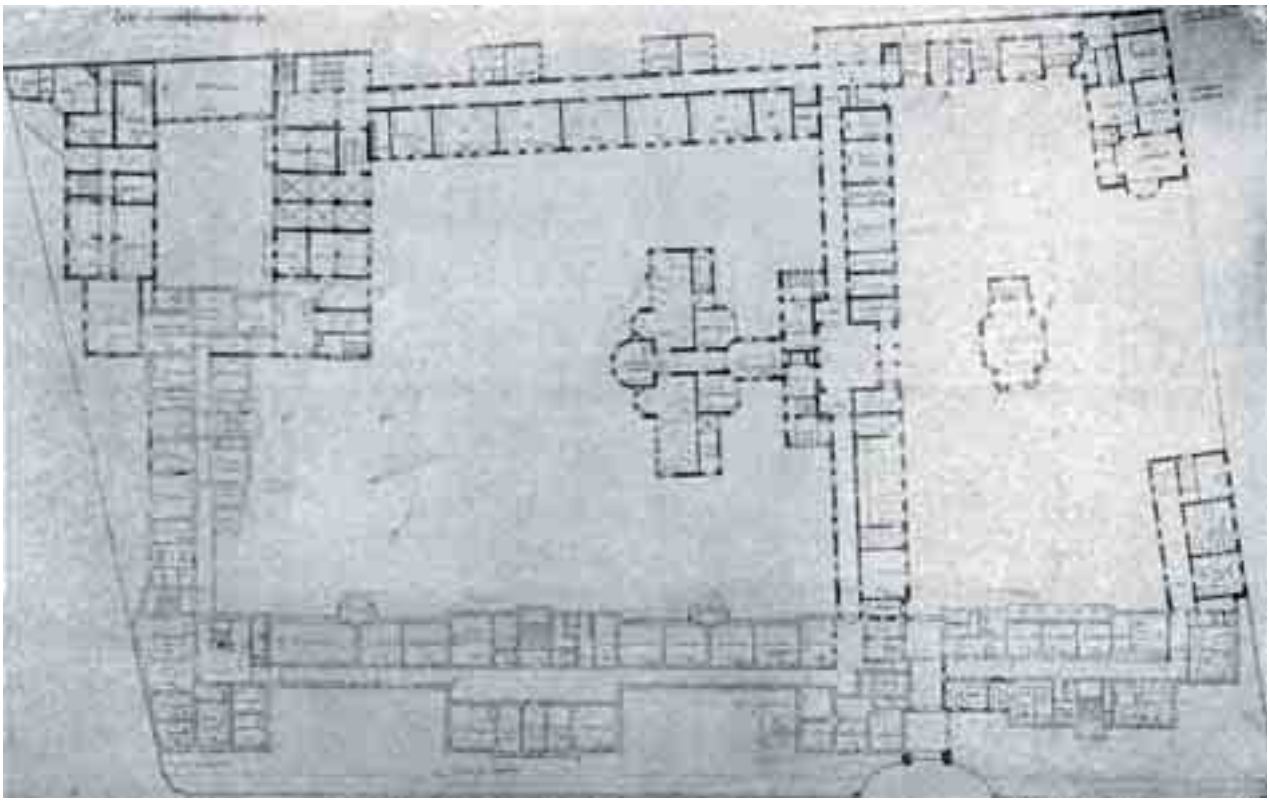


Fig. 7. Marian Pospieszalski, clinic extension project, view of the ground floor, 1927 [7, p. 365].
The plot of the hospital was surrounded by the following streets: from the north – Jackowski Street, from the south – Bukowska Street, from the west – Polna Street

verse building or rather the hall before the entrance to the operating building will be [...] *in respect of internal traffic virtually dead and that's the way it should be. That's why it would be a mistake to concentrate the internal traffic in this place by creating an entrance there, though from the pure architectural point of view it may look reasonable. This is the reason why the main entrance to the clinic was designed between the two existing buildings because this is the very dispatching center for the public coming to the clinic for treatment from the outside. This is where in most cases the porter or administration will direct the public to specific wards* [...] [7, p. 365]. Pospieszalski referred here to the layout of the hospital in Chemnitz where the entrance was designed between the building which serves treatment purposes and a septic building housing units with patients suffering from infectious diseases (Fig. 8) [10, p. 457].

The maternity unit was still to be located in the old wing from Polna Street, whereas the gynecology unit was planned in the new section parallel to that street. The old wing from Jackowski Street served primarily the utility purposes. On the other hand, the building at Bukowska Street had classrooms for medical students on the ground floor and most likely smaller rooms for the patients

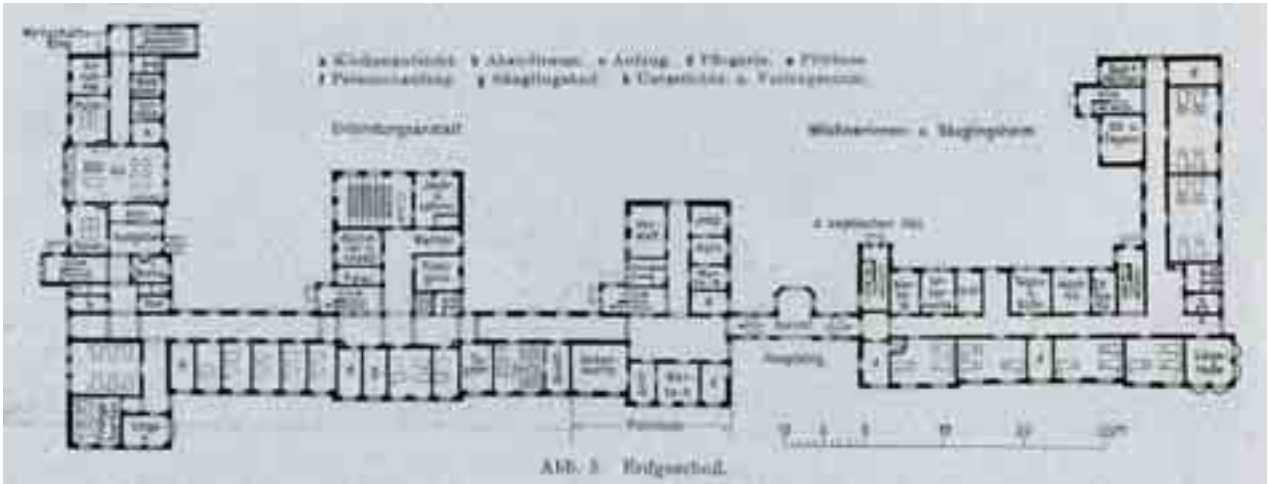


Fig. 8. Gynecology and Maternity Clinic in Chemnitz, view of the ground floor, 1918 [10, p. 458]

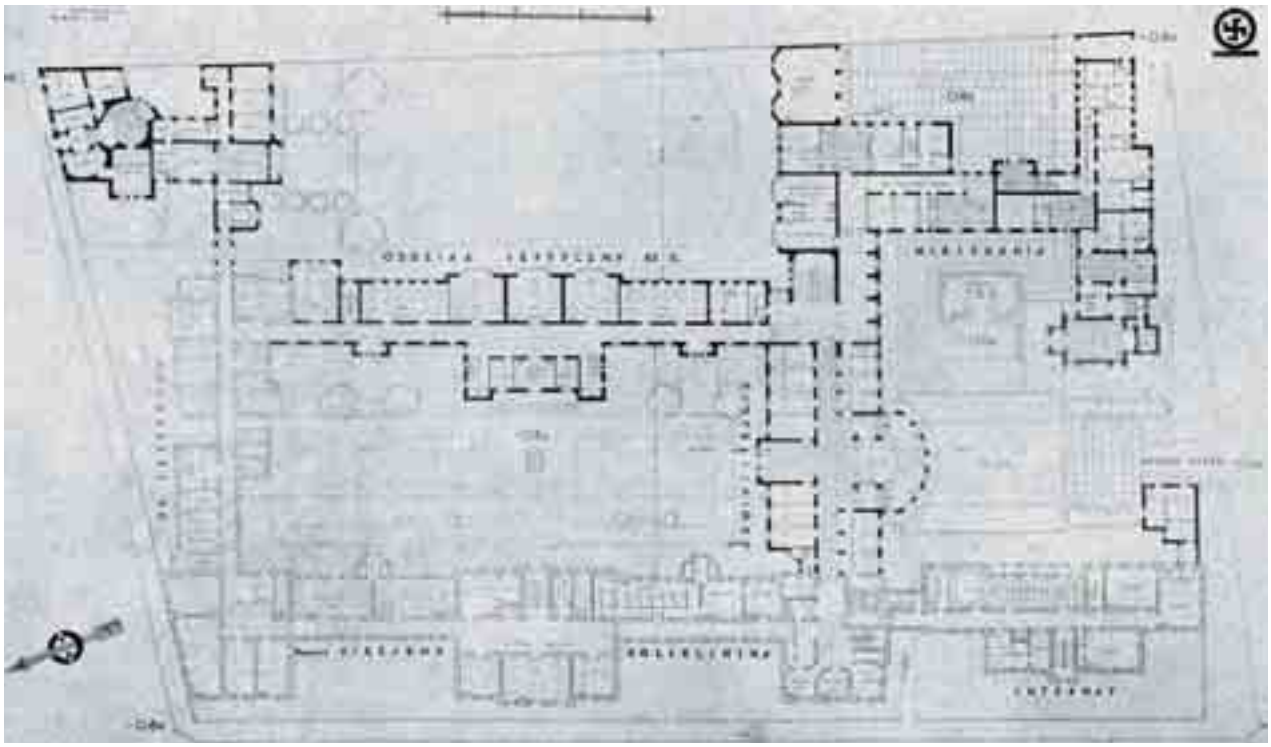


Fig. 9. Czesław Przybylski, clinic extension project, view of the ground floor, 1927 [7, p. 370]

upstairs. It had an annex adjoining it from the side of the internal courtyard with operating and labor rooms. Opposite on the topmost story there was a lecture room. Students were to be directed through the entrance from Polna Street and further through separate stairs from the courtyard or to enter directly from Bukowska Street. Such a solution guaranteed peace for the patients and did not disturb the purpose of the building which was first of all to comfort the patients.

Similarly, the architect located the kitchen and laundry facilities in the buildings around the courtyard at Jackowski Street. The meals prepared on the first floor which had most rooms for patients were to be transported with the use of elevators to the ground and second floors.

The planned hospital had apartments for medical personnel in pre-assigned locations: in the wings from Polna and Jackowski Streets, whereas the new ones were in the section with a small utility courtyard. The two-level apartment[10] for the Hospital Director had the most convenient location in the small wing closing the open courtyard. The direct proximity of the apartment and the workplace was anyway the usual practice in both hospitals and office buildings. Consequently, it was possible to reduce the number of rooms for medical personnel in the hospital and constant supervision of the patients.

While making the layout of the whole project, Pospieszalski took into account first of all the functionality and logical location of passageways primarily serving the patients. Compared to the other projects Pospieszalski's proposal was least disturbing for the construction system of the existing buildings. At the same time it had significant advantages in respect of urban planning. The façade from Bukowska Street with a spacious courtyard created a stately landmark of the clinic. Previously the hospital was located practically on the outskirts of the city. Along with the growing expansion of the city districts to the west, Bukowska Street became more significant also because of the grandeur of the hospital building. The main perspective was framed by the wings of the old and new parts unified in the frontal view by smaller annexes closing the courtyard.

The other competition projects differed significantly from the winning work by Pospieszalski. According to the hierarchy established by the competition jury the second prize went to Czesław Przybylski. The proposal of the architect from Warsaw offered a very interesting solution to the problems imposed by the requirements. The main entrance was designed from Bukowska Street and it was also accessible from Polna Street through the passage under the connection of the first floor of the existing buildings[11].

In his layout of the interiors Przybylski located the most important units: maternity and gynecology in the main quadrangle building around the enclosed courtyard respectively on the first and second floors (Fig. 9). The passageways were to run – unlike in Pospieszalski's design – on individual floors. The wings opening to Bukowska Street had apartments and a dormitory.

[10] The director's apartment was designed according to the formula applied by Pospieszalski in villas. Compare: [8].

[11] This passage was built during the remodeling in the years 1936–1939.

Fig. 10. Adam Ballenstedt, clinic extension project, view from Bukowska Street, 1927 [7, p. 373]

Przybylski offered a very practical solution of the functionality of the whole project, maintaining at the same time the necessary benefits. However, in comparison to Pospieszalski's proposal the rooms designed by him were able to accommodate a bigger number of patients. Another drawback of that design was the lack of freight elevators next to kitchens and laundry rooms.

Other competition designs presented quite varied solutions, however, they were all based on the same model of the courtyard. In respect of the general composition of the buildings the project by Adam Ballenstedt was closest to the works by Przybylski and Pospieszalski. The architect also planned a spacious courtyard from Bukowska Street. He was the only one, however, to offer a visually separate director villa with a connection leading to the clinic (Fig. 10). In the last two proposals by Witold Minkiewicz and Stefan Cybichowski two spacious courtyards were enclosed by a quadrangle of buildings. In their compositions they resembled to the largest degree the solutions applied in palace architecture with its 'grandiose' driveway leading to the main entrance.

It should be stressed that because of the quadrangular blueprints of the projects it was easy to 'conceal' the specialization of the hospital and the functions of its individual sections. Regardless of the image from the outside, however, what determined the layout of the rooms inside was the comfort of the patients and the efficient provision of healthcare by the medical personnel. Apart from the issue of the close location of utility rooms, procedure rooms, classrooms for medical students and the rooms for patients, their appropriate geographical orientation and the surrounding of the building was equally important. Similarly to the residential building the location of rooms on the south and west sides, where the sun exposure is optimal, was also important. The placement of the beds transversely to the windows gave enough walking space. After opening the window located on the room axis the patients were not exposed to drafts[12]. The number of patients per one room that was taken into account in most submitted projects was six, which fully met the then applicable standards. The introduction of single rooms for the patients with infectious diseases requiring isolation, which were not offered in the old building of the clinic, was an additional great advantage [2].

On the other hand, the isolation of the utility section was organized in a different way. In the submitted solutions the laundry rooms and kitchens were to be located in the basements (Przybylski, Minkiewicz, Cybichowski) or in separate utility wings (Pospieszalski, Ballenstedt). In most projects the transport of meals and the access route to the laundry room were to be facilitated by utility elevators. Furthermore, apart from the passenger elevators located already in the old section, new ones were designed in the new buildings too. In the projects by Pospieszalski and Cybichowski, the elevators were also designed next to operating rooms, consequently facilitating the transport of patients. The modern functional program of the hospital was completed with garages in the basements.

Regardless of the functional proposals formulated by the six submitted projects, they clearly presented the trends in the interwar international architecture. They regarded not only the issues connected with hospitals but also the basic postulates in the scope of residential building which were discussed in detail in the architectural community. The problem of the hospital at Polna Street became exceptionally significant especially in the context of Poznań which was developing very intensively after regaining independence.

On the one hand, the hospital for natural reasons is an exceptional example of 'architecture designed for temporary stay' and, on the other hand, it had to include the real apartments in its design. If other functions necessary in the hospital building are also taken into account – such as meals, sanitary issues and a chapel – the hospital has under one roof a number of typical areas of human activity in 'normal' environment[13].

In the case of the Parturient Clinic in Poznań, in connection with the establishing of the Faculty of Medicine at the University, additionally the rooms for educating students as well as appropriate space for treatment and operating rooms for practical presentation of knowledge

[12] Such a solution was offered in the project by Marian Pospieszalski.

[13] The Roman-Catholic chapel seems to suggest that the „Parturient Clinic" was designed first of all for Polish citizens though the documents which have been preserved do not contain any straightforward declarations in this respect. The protestant Deaconesses hospital located nearby provided medical care for the Germans, whereas the hospital at Wieniawskiego Street belonged to the Jewish community.

had to be designed. Combining those various functions logically in a limited space, taking into account the comfort of the patients, posed a huge challenge for the skills of the architect. As described in an article on Warsaw hospitals: *(and) indeed only those who studied longer and more thoroughly that intricately subtle and responsible profession, fulfilling all contemporary requirements of medical science can certify that meeting the various, frequently self-contradictory conditions is simply unachievable in respect of technology or economical aspects, not to mention the specific difficulties regarding the composition of hospital architecture* [4, p. 102]. No wonder then that the issue of the extension of the clinic in Poznań caused such great interest in the whole community of architects.

The very superficial analysis of the projects submitted for the competition allows for defining the principal issue that was left for resolution by the architects, namely the rationalization of treatment, consisting in taking into account the comfort of the patients in relation to therapy, utility aspect and education of medical students. The patients were not considered as objects but they were sorted into series, groups and placed within a certain structure of individual hospital units. Historically speaking, such an approach to the patient was the result of the 19th century processes of the development of medical knowledge and a new definition of a hospital. The form, on the other hand, was based on the models which had developed over the centuries. That is why all submitted works were based on a quadrangular plan which was popular in the hospital building tradition. Regardless of specialization of the hospital, the functions it served remained concealed behind its walls.

The layout of individual rooms in the extended clinic resulted from the concept of segmentation and isolation within the social space. From today's perspective some clear analogies appear between the postulates regarding the Parturient Clinic and the concepts formulated much later by Michel Foucault, described in *The Birth of the Clinic*. The idea of the competition was, however, much broader than that put forward by Foucault's definition of the "tertiary spatialization" of a disease understood as *all gestures by which, in a given society, a disease is circumscribed, medically invested, isolated, divided up into closed, privileged regions, or distributed throughout cure centers, arranged in the most favorable way* [6, p. 35]. It was not only about 'concealment' and isolation of the patients from the rest of the society but also about a much more complicated relation. As declared in the competition conditions within the broadest possible framework, the interior space was supposed to be designed in such a way that the rooms for the patients, apartments for medical personnel and utility rooms constituted units which possibly do not disturb their mutual functioning. At the same time it was very important to separate the 'parturients' which appear in the name of the clinic – that is women in labor – from the 'patients with infectious diseases.' Education of the students in a way applied on those basic functions was to be provided in separate rooms, only at times getting into the treatment sphere for necessary observations.

In the context of those complicated relations the visiting of the patients was no longer an issue. The specific character of the "Parturient Clinic" made the visits much less convenient than in hospitals with other specializations. It did not have broad corridors or halls which exist in hospitals nowadays. A disease and recovery of health were seen within the architectural constraints of a hospital in their purely 'material and visible' aspect – good sanitary conditions were supposed to enable the fastest possible return to normal existence.

Exterior formula

The purely utilitarian functions of the submitted projects evidently outweighed their artistic aspects. In this context it is highly significant that the board considered the 'architectural aspects' – understood as an artistic and stylistic issue – as least important. The lack of specific requirements in this respect gave the competition participants a lot of freedom in shaping the exterior of the clinic. The designs of the competition buildings clearly demonstrated the differences between Polish communities of architects.

The problem of translation of the functional values of the project into the exterior language of architecture was precisely expressed by Władysław Borawski in the article referred to earlier on hospital building in Warsaw: *One should not forget that today's hospital in its general layout as well as in its individual buildings must take into account the aesthetic aspect and at the same time the simplicity and purposefulness of the interiors; it should be appealing, display a harmony of colors and appropriate lighting. All this, if applied in a correct way, positively affects the attitude of the patients, apathy, provides a more friendly and trustworthy approach to the surrounding carrying out its hard work with greater satisfaction and internal comfort* [4, p. 102][14]. According to the architect the characteristic features should not then indicate specific trends in style. However, the influence of the idea of colors affecting human mentality advocated by Bauhaus is clearly palpable in this respect. The functionality of a building is equally important as the psychological aspects. Consequently, though executed in a slightly different way by each of the architects, the unification of the old and new section of the Parturient Clinic buildings also alluded to those ideas.

[14] A similar opinion was also expressed by Marian Pospieszalski in his definition of designing: *To design means to search for the most simple and most effective spatial expression of a given building objective in both construction and functional as well as aesthetic aspects* (postwar notes of the architect).

Fig. 11. View of the Clinic at present from Polna Street. Visible connection between two oldest parts of the building (photo: A. Paradowska)

Fig. 12. M. Pospieszalski, residential house at Marcelińska Street in Poznań, 1928 (photo: A. Paradowska)

The differences between the project by Czesław Przybylski and the proposals by Pospieszalski and Ballenstedt were especially evident[15]. Their source was not only the authors' established styles but also – above all – their education. Przybylski, as a graduate of Warsaw University of Technology, used a more simplified language of forms than the architects from Poznań connected with the University of Technology in Charlottenburg. Although the work by Przybylski also falls within the then contemporary trends in German architecture, it proved very modern in reference to building in Poznań.

The concept on which Pospieszalski based his project had two ambivalent aspects: retrospective and prospective. On the one hand, in the most general outline it was adjusted to the oldest part of the clinic designed by Grüder (Fig. 11). By analogy the new wings were covered with double sloping roofs. One of the corners around the utility courtyard had a little tower (Fig. 3). On the other hand, a different picture was presented in the longest wing from Bukowska Street with a dormer reaching above the roof surface in the middle (Fig. 6). A slight elevation of the roof[16] on both sides of the projection resembled the solution applied earlier by the architect in the block of residential houses at Przybyszewski, Marcelinska, Biała and Niecała Streets (Fig. 12).

The views of both façades of this wing cause one to come to surprising conclusions. The building with operating and labor rooms overlooking the main courtyard (Fig. 13) resembles a reduced version of the Palace of Art (Fig. 14), built in connection with the National Expo. The projection mentioned above (Fig. 6) in the project by Pospieszalski formally corresponds to the faç ade of the Government Palace[17] (Fig. 15). Due to the use of high windows on the axes, the projection of the hospital building, however, appeared much 'lighter' than the massive façade of the building at Grunwaldzka Street. Thus Pospieszalski made a clear reference to the tradition of architecture developing in Poznań at that time.

On the other hand, the project by Adam Ballenstedt demonstrated evidently 'German' features (Fig. 5, 10). This proposal corresponded to the newer one of the existing buildings – the wing designed in 1913 by Teubner at Polna Street (Fig. 2). The new façade from Bukowska

Fig. 13. Marian Pospieszalski, clinic extension project, view from the courtyard, 1927 [7, p. 364]

[15] What was published from projects by Stefan Cybichowski and Witold Minkiewicz were only general views of the buildings and not the detailed views of their facades.

[16] Preventing designing additional rooms in the attic.

[17] Both exhibition buildings were created in Poznań for the National Expo from 1920.

Fig. 14. Edward Madurowicz, Palace of Art, built from 1920 for the National Expo (at present Collegium Anatomicum). (photo: R.S. Ulatowski, Library of National Museum in Poznań)

Street completely maintained its style and composition. Its numerous Baroque-like elements belonged to the permanent repertoire of forms applied by the architect[18].

The most daring work among all competition projects was the design of Czesław Przybylski (Fig. 4) based on a juxtaposition of buildings with different shapes and heights covered with flat as well as sloping roofs at different grades. The system of decorations was based on a relation between windows of different kinds and sizes and the simplified architectural details they were decorated with. Przybylski used the existing buildings, which varied among themselves, to create further contrasts in combining buildings and shapes. Paradoxically, such a solution gave his project an effect of coherent and distinctive architecture.

In the case of Poznań it was probably difficult for the representatives of its community to accept the proposal by Czesław Przybylski. Although theoretically the "architectural aspects" were considered by the jury least important, one can assume that the project by Marian Pospieszalski was easier to accept. In this respect the competition college must have taken into account the opinion of Roger Sławski who held the position of the Architectural Director of the National Expo and as such he was the author of a number of buildings which were erected. In the opinion of the jury in practice the aspect of style grew in significance among the similar courtyard solutions submitted to the competition. That is why the competition projects of the Clinic at Polna Street should be primarily evaluated in the local context of the then 'new' architecture in Poznań, including the National Expo, which represented a compromise between forms of building applied by the former partitioner and 'modern' Polish trends. Just like the project by Pospieszalski, on the one hand, it was adapted to the Wilhelmian historicism of the existing buildings, on the other hand, however, it demonstrated a totally new image of the city.

[18] Compare: e.g. Streetcar House at Słowackiego Street in Poznań.

Fig. 15. Edward Madurowicz, Roger Sławski, Government Palace, built from 1920 for the National Expo (at present Collegium Chemicum) (photo: A. Paradowska)

The question of the extension of the Clinic at Polna Street was an extremely important undertaking also in the context of Polish interwar hospitals. The extension and modernization of the hospital buildings that were preserved during the partitions was a very popular practice[19]. The cases when whole new buildings were erected were much less common. A similar to those in Poznań was the project of a rectangular courtyard building of the maternity hospital designed by Władysław Borawski that was under construction since 1929 in the Praga District in Warsaw (Fig. 16) [4, p. 114–115].

In the context of the whole country the competition projects of the "National Clinic for Women" also posed general problems of hospitals in their complexity as they combined under one roof the functions of academic education, creating new proposals for future clinical hospitals of other specializations too.

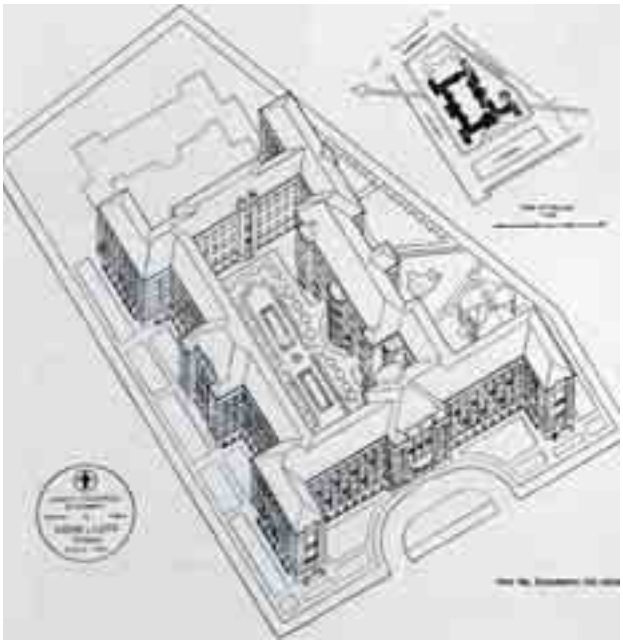


Fig. 16. Władysław Borawski, St. Elizabeth's Maternity Unit in the Praga District in Warsaw, aerial view, 1929 [4, p. 102]

[19] For instance St. Stanislaus, St. Lazarus and St. Baby Jesus hospital in Warsaw or extensions of the psychiatric hospitals in Gniezno and Owińska on the territory of Poznań Province.

Epilogue

Due to the lack of funds the work on the extension of the Parturient Clinic in Poznań was in effect restricted only to the slight extension from Bukowska Street and modernization of the existing rooms. All construction work was carried out in the years 1933–1939 by Marian Pospieszalski.

The plan of the new wing was in fact a small fragment of the winning project by Pospieszalski. There is virtually no difference between the old building and the part that was extended from the outside. The only elements by which one can tell that this part of the building was built later are the omissions of recessed panels between windows on individual floors. Similarly to the original version, the wing from Bukowska Street was annexed at an angle smaller than 90 degrees to eliminate the irregularities of the plot.

In reply to the postulates formulated by the Clinic Director the architect designed the hospital kitchen and additional rooms as well as baths in the small wing from Bukowska Street [1]. The reduced extension of the hospital then took into account on the miniature scale the ideas of earlier competition projects.

In the same period Pospieszalski also modernized the operating room in the old building which due to insufficient ventilation in relation to the area did not meet the basic sanitary requirements any more [2][20]. The architect applied here the most modern available solutions, thanks to which, although in the basic scope, the needs of the clinic in Poznań were addressed[21].

The text quoted in the introduction providing the requirements of the competition for the extension of the Parturient Clinic includes all ideas of the projects that were designed at that time. Although the postulates of the patient-friendly architecture were not met in full in the case of Poznań, they in fact were an important voice in the discussion on the developing hospital architecture in the interwar times.

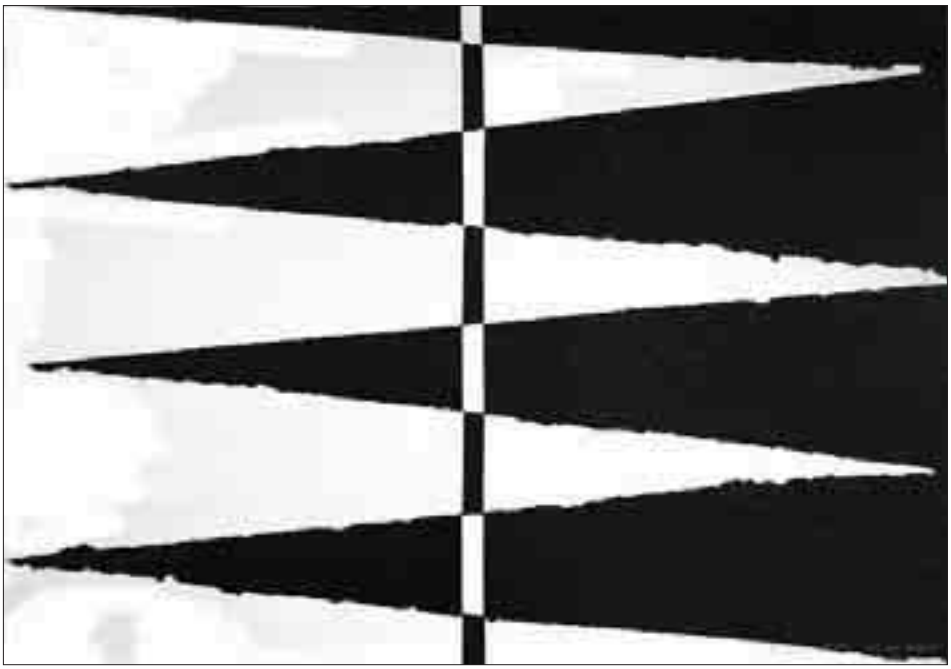
Translated by Tadeusz Szałamacha

[20] In his letter from August 16, 1926 Professor Kowalski among a number of the hospital needs emphasized the lack of ventilation of the operating room, as a result of which the fumes penetrating from the neighboring rooms for sterilization and washroom for doctors would condense from the ceiling during surgeries.

[21] Most probably at the same time Pospieszalski connected on the ground floor and second floor the two oldest buildings which had been previously connected on the first floor. This allowed for providing additional heating from the newly built boiler house in the yard annexed to the existing utility building [1].

References

[1] Archiwum Państwowe w Poznaniu (sygn. 441).
[2] Akta Archiwum Państwowego w Poznaniu (sygn. 4039).
[3] Bajoński J., *O działalności prof. dra Bolesława Kowalskiego*, „Nowiny Lekarskie", 1936, no. 48, 19.
[4] Borawski W., *Budownictwo szpitalne w Warszawie*, „Architektura i Budownictwo", 1929, no. 2/3.
[5] Brendel H., *Szpitale na peryferiach* „Kronika Miasta Poznania" 2007, no 4.
[6] Foucault M., *Narodziny kliniki*, Warszawa 1999.
[7] Konkurs ograniczony na projekt rozbudowy Kliniki Położnych w Poznaniu, „Architektura i Budownictwo", 1927, no. 11–12.
[8] Paradowska A., *Ładne domy – o architekturze willowej Mariana Pospieszalskiego*, Master's degree under the direction of Professor T.J. Żuchowski, Intitute of the History of Art, Adam Mickiewicz University, Poznań 2007.
[9] Ruch Samorządowy Poznańskiego Wojewódzkiego Związku Komunalnego, 1927, no. 1–3.
[10] Schultze F., Bergius R., *Die neue staatliche Frauenklinik mit Mütter – und Säuglinsheim in Chemnitz i.Sa.*, [in:] „Zentralblatt der Bauverwaltung", 1919, no. 19.



Drawn by the M. Hutna

Architectus

2008
Nr 2(24)

Jerzy Potyrała*

Buildings from the 18th and 19th century on the main rampart of Prussia Fort in Nysa

Introduction

Prussia Fort, which was built in order to perform a defensive and frightening function, severe in its military form, has become patinated and even romantic in character. Despite the fact that the sun, water and plants deformed its historical shape to a considerable extent, it still inspires admiration and interest for its creators. On the one hand, we would like to see nowadays fortification works, counterguards and the moat in their original forms or to experience the staging of a historical battle which would take place on the reconstructed ramparts of the Fortress. On the other hand, the fortress which is covered with invasive plants attracts us with its mystery and has become not only a place of relaxation but also a place where we can have contact with history and nature. In the works concerning the revitalization of the complexes, a key meaning, particularly in the first stage, is constituted by a proper land development of green areas. Trees and bushes most often grow spontaneously in the majority of the fortress area. Their roots not only destroy walls but they also stabilize constructions. The most significant tasks to be performed by architects of landscaping design are as follows: emphasis on historical elements, liquidation of invasive plants which destroy the form of fortification works, the choice of valuable units with regard to landscape and quality, the assessment of the functioning ecosystem, the project of designing green areas in an attractive way with regard to the space. This is a really significant stage along with typical architectonic and building preservation works which are carried out parallel and require large financial expenses in order to restore the glamour of the past of those magnificent fortresses.

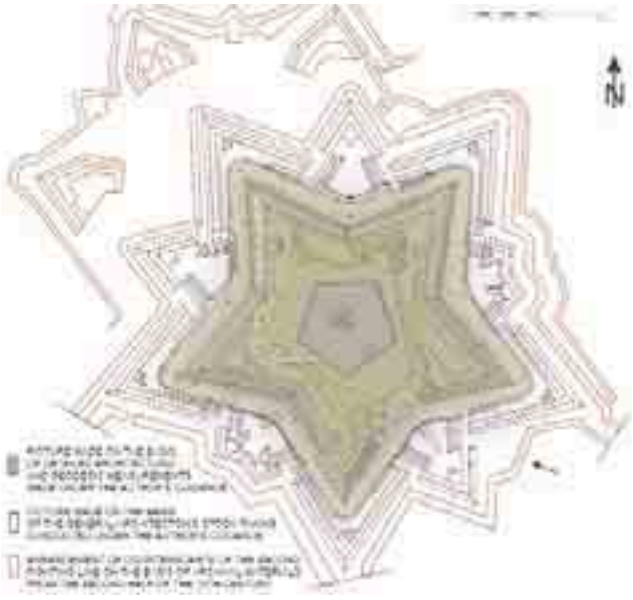


Fig. 1. Outline of Prussia Fort (drawn by the author according to his own examinations)

Location and a general historical outline of Prussia Fort

The resources of fortification monuments in Nysa constitute a cross section of fortification buildings from different periods of time. We can find there fragments of Mediaeval town walls and two gatehouses as well as the remnants of 17th-century ramparts in the territory of the town green areas originating from the period of classical fortresses and the well preserved Bastion of St. Jadwiga. The period of main fortresses constitute the High Ramparts, Outer and Inner Jerusalem fortifications, Prussia Fort and Bombardier Fort, which were built in the second half of the 18th century. At that time, the fort

* Institute of Landscape Architecture, Natural Sciences University in Wrocław.

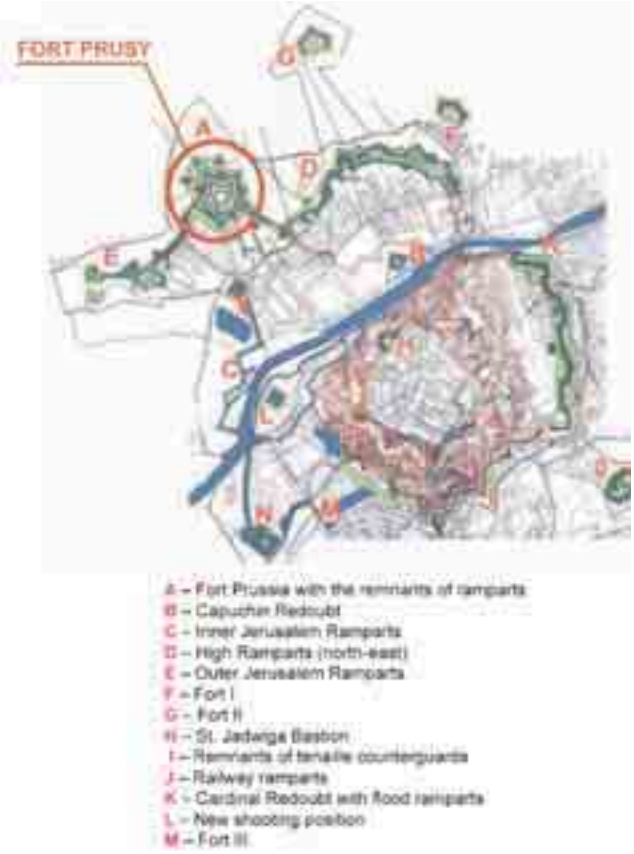


Fig. 2. Nysa fortifications (elaborated by the author)

existed in the form of a fortified camp and represented the most modern achievements of the fortification ideas. The objects of a centralized fortified system in the form of the Blok-hauzschanze Fort, railway fortifications and objects in the foreground – artillery forts I, II and III originate in the 19th century, the period of fortified areas.

Prussia Fort, which constitutes the subject of this elaboration, is situated in the north of Nysa on the left bank of the river Nysa Kłodzka; one can get there from Kilińskiego Street along Obrońców Tobruku Street. The center of foundation constitutes the star with five points which is surrounded by the main dry moat. Behind it, there is a ring of fortification works and counterguards. Outside, there is the other dry moat with a rampart and a hidden road which is preserved only in fragments. In the north in front of Pomorze fortification works there are the remnants of Diericke shooting positions. In the southern part there are two connecting ramparts in the direction of Bombardier fort and Outer Jerusalem Ramparts.

During the Silesian War II in 1741 – after the siege of Nysa which belonged to Austria at that time and which lasted almost a year – the Prussian army under the command of Frederic II the Great conquered the fortress. Neither the ring of fortifications around the town, which was built according to the Dutch and New-Italian school in the 17th and 18th century nor the determination of defenders helped. By virtue of the treaty concluded in 1742 in Wrocław, Silesia went under the governance of Prussia. Frederic II began to build a fortification complex on the left bank of the river fortifying strategically significant slopes according to the Old-Prussian school. The following fortifications were built: Outer and Inner High Jerusalem ramparts and the redoubt of the fortress – Prussia Fort.

In 1743 building of the redoubt started. Frederic II personally supervised the works and the major architect of these fortifications was major-general Gerhard Cornelius de Walrave. This distinguished engineer, who came from the Netherlands, was undoubtedly the pillar of Prussian fortification art in the middle of the 18th century; in particular, he developed the system of ixodic counterguards which was called the star-like system. It is worth recalling that the Polish King August II was also a theoretician of ixodic systems. The fort finally had the shape of a star with five points although the first plans concerned an outline of a six-point star. After all, building of the central star was completed in 1745 (in spite of the year 1744 shown on the building of the fortress' well) and then the fort was rebuilt and modernized numerous times until the 80s of the 19th century.

The fortress was besieged twice during Silesian War III and it was conquered in 1807 by the French army after Prussia joined the anti-French coalition IV. After less than two years the fort came back under the governance of Prussia. In the years 1859–1869 it functioned as soldiers' barracks, whereas in the years 1864–1866 and 1870–1871 there was a POW camp. Since the year 1914, soldiers' equipment was stored in the territory of the fort, while in the 30s there was a shooting range for small-caliber weapon and a storehouse for ammunition [3].

State of examinations of the object

Project workshops with the participation of students, of the Landscape Architecture of the Natural Sciences University in Wrocław, conducted by the author and organized in cooperation with the Society of Friends of the Nysa Fortifications and the Town Council of Nysa took place in May 2004. During these workshops, a draft listing of plants in Prussia Fort was prepared and also the reconstruction design concepts of reconstructing fortification works and counterguards. In the autumn of 2004, within the scope of design classes, students of Landscape Architecture under the guidance of the author prepared architectonic listing of several shelters in the crown of the citadel. The works were continued in May 2005 during design and cataloguing of 3th year students of Landscape Architecture practice. Listing of the remaining shelters and plants in the crown of the central star was also made at the same time.

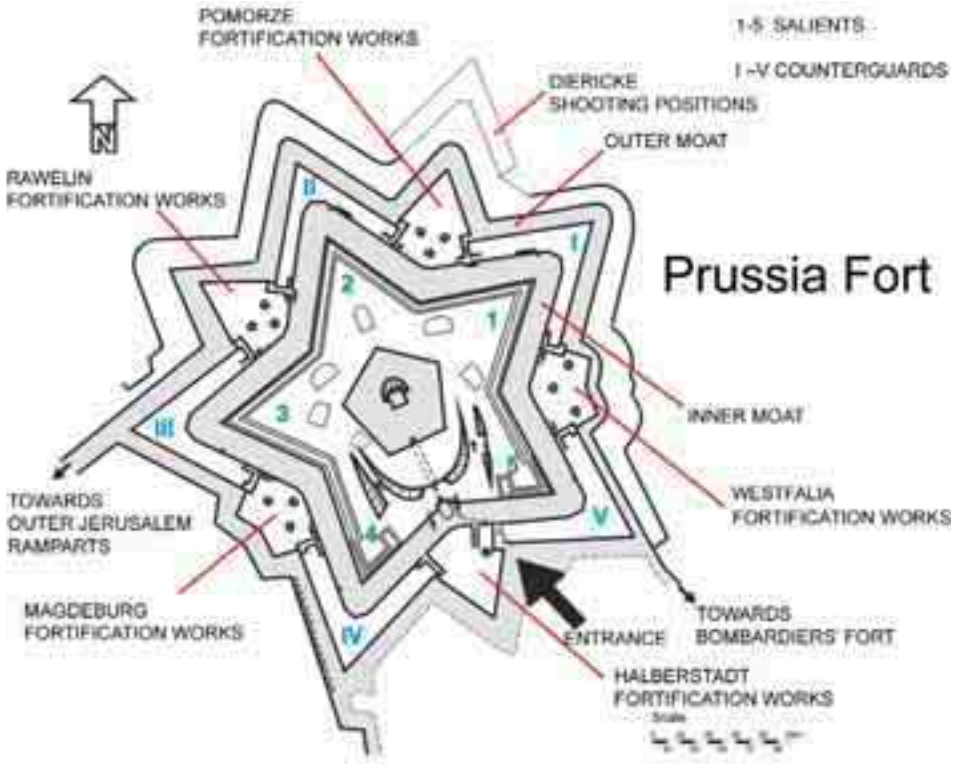


Fig. 3. Elements of Prussia Fort

Architectonic values and the present condition

The tenaille system developed parallel with the bastion system but the latter dominated the realization of fortifications in the 17th and 18th century. The origins of the tenaille system are found in the research works of Francesco Martini (1495) and then developed by Ludwik Landsberg in 1712. The best research work concerning this subject is a study of general Marc Montalembert entitled *Perpendicular Fortification* published in 1787 in Paris.

Several tenaille foundations in the form of a star made mainly by general Warlave are situated in Silesia. These are the following forts: Głogów, Kłodzko, Nysa and Świdnica; in Koźle and Skorogoszcz there are preattempts of such solutions. In comparison to other forts, Nysa deserves a special position. A good technical condition, legibility of its original foundation and preservation of the whole arrangement of the 18th century left-bank fortifications, the year of foundation and finally the name of its designer decide on this position [2].

In the central part of Prussia Fort there are ten small shelter buildings having different purposes; they were built during the construction of the fort and later during the successive modernizations of the fort. These are two objects from the 18th century: the well and the guards shelter (SS) which was located in the middle of the courtyard market and a half-caponier (PK) which was built into the salient of the neck tenaille.

Among shelter buildings situated in the crown of the main rampart, probably in the 19th century, the first two underpasses, i.e. shelters of vertical communication with main casemates of the underground shelter called 'podwalnia' at the foot of the ramparts were built. The arrangement of the cornice on the neck elevation and the condition of bricks preservation differentiate them from other buildings. During the following years, an ammunition laboratory, a guardhouse and an ammunition storehouse were built. The form of the main ramparts and the objects which were situated on them until 1865 is still not fully clear and requires thorough studies of archives. The basic rebuilding took place in the years 1865–1888 during which the main rampart was made higher, the land form between positions was changed, two couch-house shelters, the caponier and gateways were rebuilt and finally an ammunition laboratory was also rebuilt (it was made shallower, the roof was strengthened by means of granite and concrete layer), which changed its function and became a neck guard house [1].

Fig. 4. Present condition of green areas in the territory of Prussia Fort. (photo: J. Potyrała)

Buildings from the 18th century in the territory of the fort

The well and guardhouse shelter (SS)

Dimensions

The total area of inner parts – 58 m^2, cubature – 1026 m^3. Height 340 cm. Thickness of the earth layer is about 120 cm.

Material: brick.

The objects consist of three rooms which have barrel vaults. Two southern rooms are rooms of guards; the northern one has the fort well. The inscriptions: the initial of Fryderyk II and the date 1774 are built into the gable wall. Inner parts are covered with plaster and they are dank; the floor is made of bricks and cement; there is no window or door woodwork (only the eastern gate is preserved, interwar period). Brick wall faces have numerous cracks, losses of bricks, washout joints, a lot of moss and lichen.

Green areas

There is a flat terrain around the building of the fort well, which is covered with low flora, concentrations of trees – mainly seedlings of a maple-tree (*Acer plantanoides*) and elder (*Sambucus nigra*) as well as nettle (*Urtica dioica*) and two-year hawk's beard (*Crepis biennis*). In some places on the walls there are species of climbing plants such as grapevine (*Vitis vinifera*) or ivy (*Hedera helix*). The very building of the fort well – mainly the earth layer which covers it from the northern side – is also densely covered with bushes such as elder (*Sambucus nigra*), plicate blackberry (*Rubus plicatus*), two-year hawk's beard (*Creppis bennis*) and also young seedlings of maple-tree and oak. The are various species of grass.

Half-caponier (PK)

Dimensions

Width of the neck wall – 361 cm, height – 300 cm, thickness of the interior – 120 cm. Thickness of the earth layer is about 120 cm. The total area of the interior – 35.4 m^2, cubature – 154.9 m^3.

Material: stone and brick.

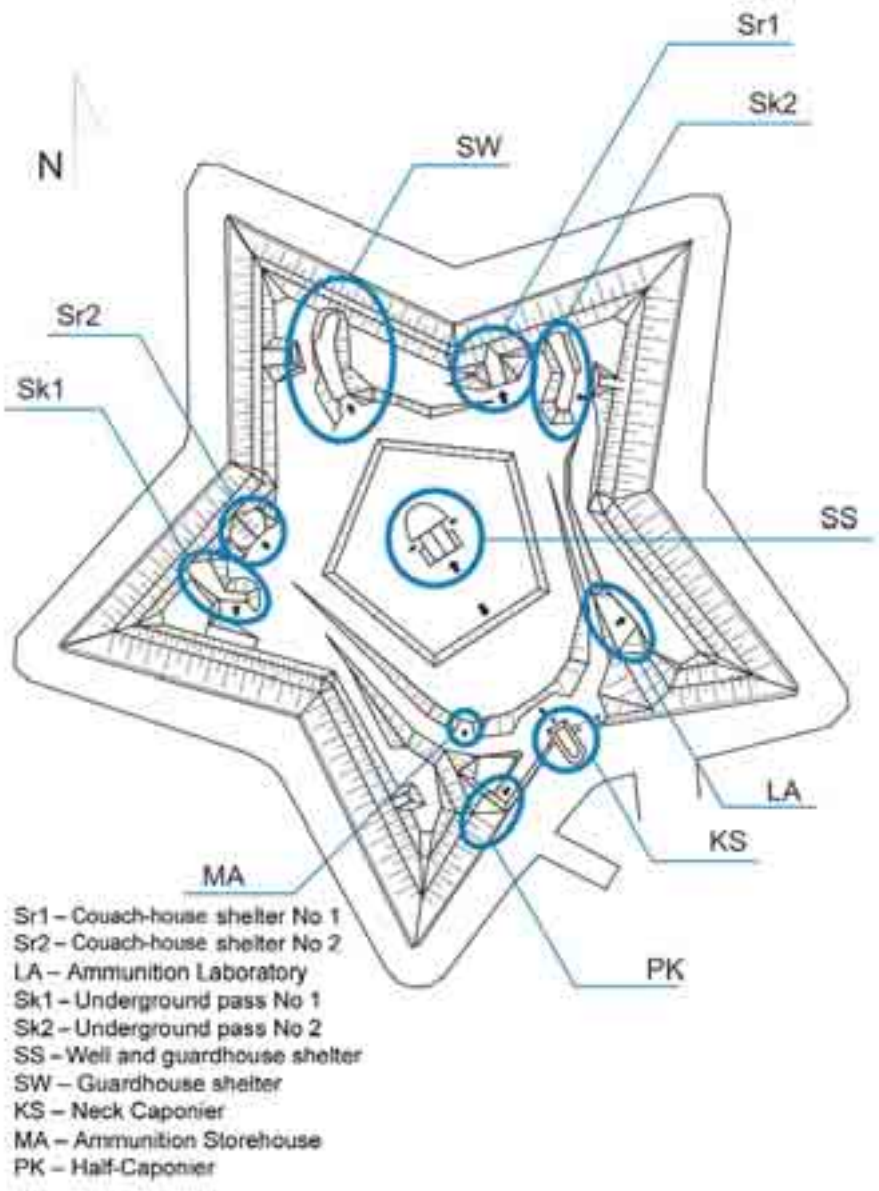


Fig. 5. Location of shelters in the territory of the main fort rampart (drawn by the J. Potyrała)

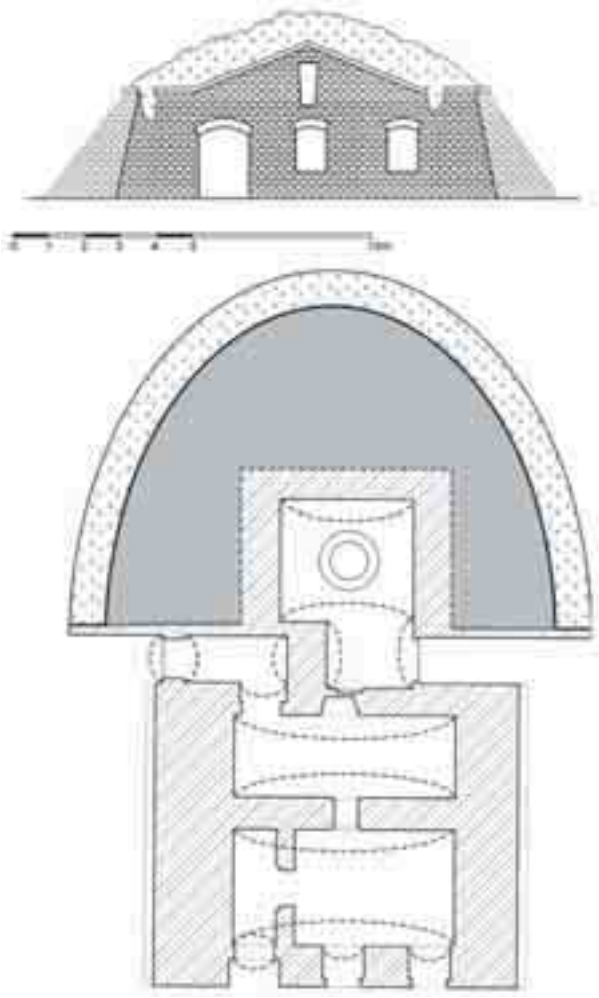


Fig. 6. The well and guard shelter – SS (drawn by the author)

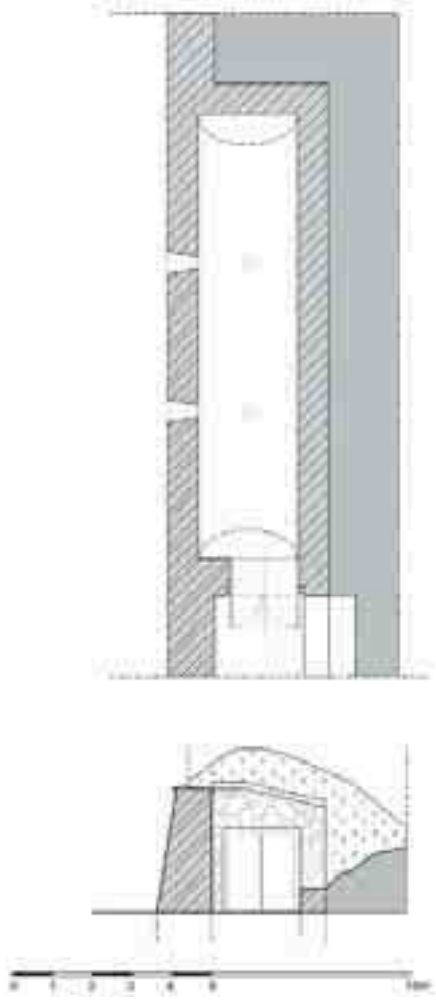


Fig. 7. Half-caponier – PK (drawn by the author)

One-room interior with a barrel vault and a floor made of brick. There are two walled up shooting ranges in the southern wall. There are two ventilating holes on the vault axis and a well preserved wooden double door from a later period. The condition of walls is good and the interior is dry.

Green areas

The area around the salient No. IV is covered with trees and bushes of middle height; maple-tree (*Acer plantanoides*) and ash-tree (*Fraxinus exelsior*) dominate there. There are thick concentrations of those plants together with such species as elder (*Sambucus nigra*), mountain elm (*Ulmus glabra*) and wide-leaved linden (*Tilia platyphyllos*). The walls of the moat are covered with ivy (*Hedera helix*), old man's beard (*Clematis vitalba*) as well as with nettle (*Clematis vitalba*) and grass. Low plants dominate on the side of the neck caponier where besides the above mentioned plants there are also the following species: mugwort grass (*Artemisia vulgaris*), common goldenrod (*Solidago virgauera*), grapevine (*Vitis vinifera*) and also seedlings of verrucated birch (*Betula pendula*) and maple-tree (*Acer plantanoides*).

The crown of this part of the fortifications as well as the inner embankment from the western side is densely covered with blackthorn (*Prunus spinosa*), white dogwood (*Cornus alba*) and high grass. This part of the fort is the most densely grown over with the wild plants. These plants in consideration of their wide expansion should be thinned out in order to improve transport and uncover the foundations of the fort.

The 19th century buildings in the central part of the citadel

Architectonic listing of shelters situated on the main rampart and listing of plants which grow around these shelters were carried out. Along with the description of the preservation condition of the building, species of plants growing in the area of the escarp and in the surroundings of the object were presented.

Underground pass of the staircase leading to the underground vaulted shelter (Sk1)

Dimensions

Width of the neck wall – 1180 cm, height – 375 cm, depth of the interior – 331 cm. Thickness of the earth layer is about 110 cm. The total area of the interior – 12.2 m^2,

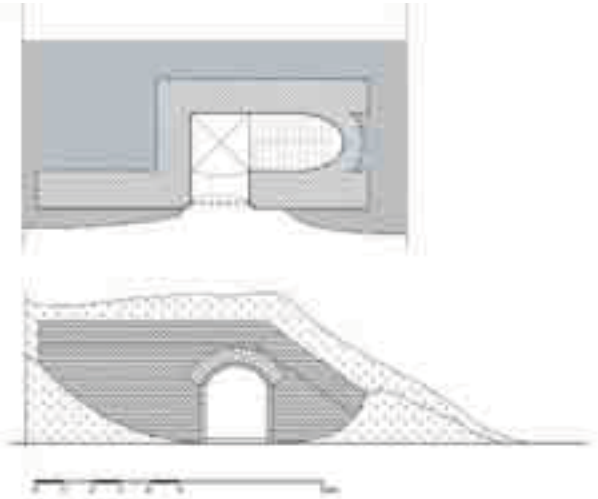


Fig. 8. Underground pass – Sk1 (drawn by the author)

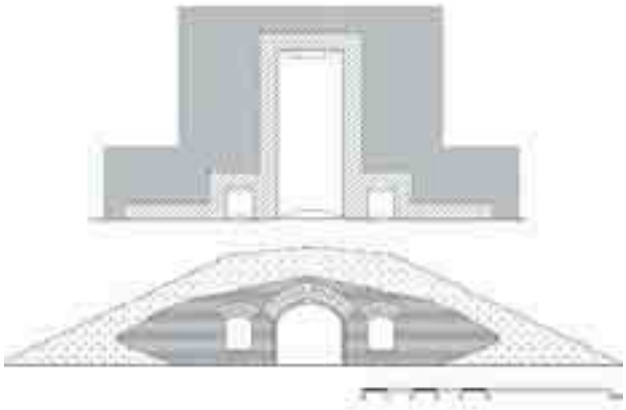


Fig. 9. Depot shelter – Sr2 (drawn by the author)

cubature – 210 m^3. Stone stairways have 20 steps, height – 18 cm; there is a walled up pass at the bottom.

Material: face brick and sandstone (stairway steps, indirect cornice), earth escarpment.

The condition of the wall and joints below the cornice is good – there are several minor losses in the door reveal; bad condition of the curtain wall above the cornice – cracks along the joints, dislocations of fragments, rising damp, a lot of lichen (wide-leaved tragacanth, fescue grass). Bricks peel off, losses of joints from 5 to 8 cm into the interior. The interior is damp, a lot of damp patches, the layer of lime which covers the walls and the cradle vault falls off. Leaves of the wooden door are preserved as well as the metal fitting of hinges. The wall above the cornice bends backwards by 15°.

In the western neck part of the shelter there is a well preserved ventilating chimney from the fort casemates.

Coach-house shelter (Sr2)

Dimensions

Width of the neck wall – 1415 cm, height – 344 cm, depth of the interior – 651 cm. Thickness of the earth layer is about 95 cm. The total area of the interior – 16.2 m^2, cubature – 199.5 m^3.

Material: face brick and sandstone (surmounting cornice), the earth embankment.

The condition of the wall and joints is good; there are several losses of bricks in reveals near metal hinges. There are also slight cracks of the bricks' layer below the stone cornice. The interior is dry; the wooden door of the canon shelter is preserved in good condition. The earth escarp is legible but it requires removing of self-sown plants and the reconstruction of turf.

Green areas

The fort salient (No. V), where these objects are located, is mainly covered with high trees of such species as maple-tree (*Acer plantanoides*), elder (*Sambucus nigra*), wide-leaved linden (*Tilia platyphyllos*), ash-tree (*Fraxinus exelsior*) and mountain elm (*Ulmus glabra*). These trees are characterized by the height of about 15–17 meters; their crowns are not too wide owing to a limited access to the sunbeams. Escarps are covered with low grass, nettle and fern; whereas several-year-old seedlings of the above mentioned trees and bushes such as white dogwood (*Cornus alba*) and dewberry (*Rubus caesius*) mainly form the undergrowth. The inner part of the fort crown, platform and inner embankment are mainly covered with big and thick concentrations of white dogwood (*Cornus alba*), elder (*Sambucus nigra*), blackthorn (*Prunus spinosa*) and high grass. In the surroundings of Sk1 we can see a concentration of young durmast (*Querqus robur*) and a group of briar rose bushes (*Rosa canina*). The whole area is covered with very thorny bushes of blackthorn (*Prunus spinosa*). There are various species of grass and plants in the undergrowth.

Underground pass of the staircase leading to the underground vaulted shelter (Sk1)

Dimensions

Width of the neck wall – 1145 cm, height – 395 cm, depth of the interior – 334 cm. Thickness of the earth layer is about 110 cm. The total area of the interior – 12.78 m^2, cubature – 219.5 m^3. Stone stairways have 26 steps, height – 16 cm; there is a walled up pass at the bottom.

Material: face brick and sandstone (stairway steps, indirect cornice), earth escarpment.

The vestibule has a cross vault and a floor made of bricks. There is a shelter over the staircase. The condition of the object is similar to Sk1.

Depot shelter (Sr2)

Dimension

Width of the neck wall – 1520 cm, height – 358 cm, depth of the interior – 650 cm. Thickness of the earth layer is about 120 cm. The total area of the interior – 16.1 m^2, cubature – 215.8 m^3.

Material: face brick and sandstone (surmounting cornice), the earth embankment.

The condition of the wall and joints is good; there are several losses of bricks in reveals of the main door; in the western part of the neck wall there are damages of the wall face caused by dampness. There are also slight cracks of the brick layer below the stone cornice. The interior is dry and in good condition. Metal fitting of hinges are preserved. The earth escarp is legible, but it requires removing of self-sown plants and the reconstruction of turf.

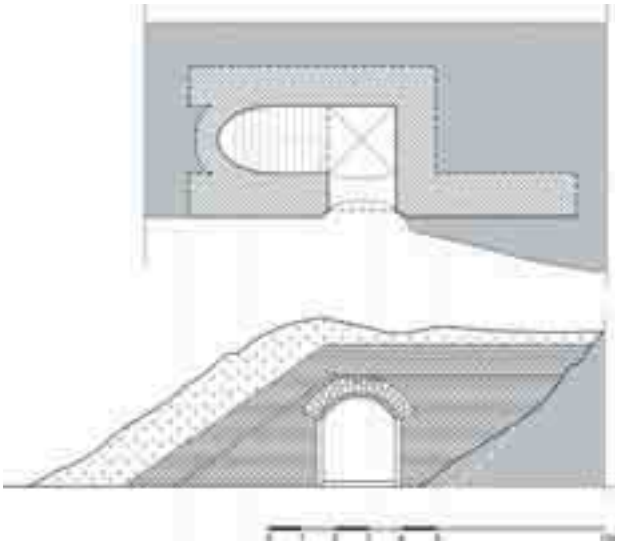


Fig. 10. Underground pass – Sk2 (drawn by the author)

Green areas

Dominating species are maple-tree (*Acer plantanoides*) and mountain elm (*Ulmus glabra*) which constitute 90% of all trees growing there. These trees usually are 16 meters high and their crown diameter is 7–8 meters. Other species are as follows: durmast trees (*Querqus robur*), maple-tree sycamore (*Acer pseudoplatanus*) and ash-tree (*Fraxinus exelsior*). In the middle layer, several-old-year seedlings of the above mentioned species are dominant as wells as bushes such as blackberry-bush (*Rubus fruticosus*), briar rose bushes (*Rosa canina*), white dogwood (*Cornus alba*), common evonymus (*Euonymus europaeus*) and blackthorn (*Prunus spinosa*). The undergrowth consists if various species of grass and herb plants.

Guardhouse shelter (SW)

Dimensions

Width of the neck wall – 530 cm, height – 349 cm, depth of the interior – 719 cm. Thickness of the earth layer is about 110 cm. The total area of the interior – 16.5 m^2, cubature – 162.2 m^3.

Material: face brick and sandstone (the cornice of side revetments), stone foundations, the earth embankment.

Condition of the wall and joints is bad; loosening on the gable wall of revetments; numerous cracks along joints and losses in wall corners. There are gaps in the stone cornice caused by plants which grew into it. The main interior is dry, the floor is made of bricks, and the remnants of a wooden floor are preserved; a layer of lime together with the face of damp bricks peel off in the vestibule. This layer constitutes the finishing of walls and the vault. There are two ventilating holes in the partition wall near the floor and one installation hole. There is a ventilating hole on the axis of the back wall (signs of using it as a smoke conduit). A one-flap entrance gate covered with galvanized iron is preserved. There are no metal fittings of hinges. The earth embankment is legible but requires removing of self-sown plants and a reconstruction of turf.

Green areas

This area (salient I) is densely covered with a variety of plants which grow widely on the fighting slope and on the outer and inner part of the fortifications crown as well.

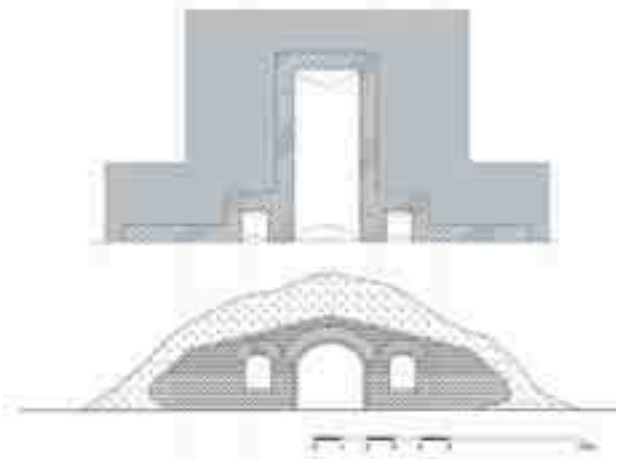


Fig. 11. Depot shelter – Sr1 (drawn by the author)

The wall face is densely covered with moss and grass. Maple-tree (*Acer plantanoides*) is a dominating species in these areas and constitutes 70% of all trees growing there. In general, the trees are of a similar size – trunk diameter 55 cm, height 15 m, diameter of crowns about 5–6 m. The form and size of their crowns is conditioned by dense undergrowth of this area and no access of sunbeams. Apart from maple-trees there are also other concentrations of tree species such as wide-leaved linden (*Tilia platyphyllos*), mountain elm (*Ulmus glabra*), ash-tree (*Fraxinus exelsior*) and durmast trees (*Querqus robur*).

In lower layers, there is a great variety of plants too. These are mainly young trees of species which were mentioned above and also blackthorn (*Prunus spinosa*) and white dogwood (*Cornus alba*). They are accompanied by few bushes such as blackberry-bush (*Rubus fruticosus*), briar rose bushes (*Rosa canina*). Plants in the lower layer consists of various species of grass, fern and nettle.

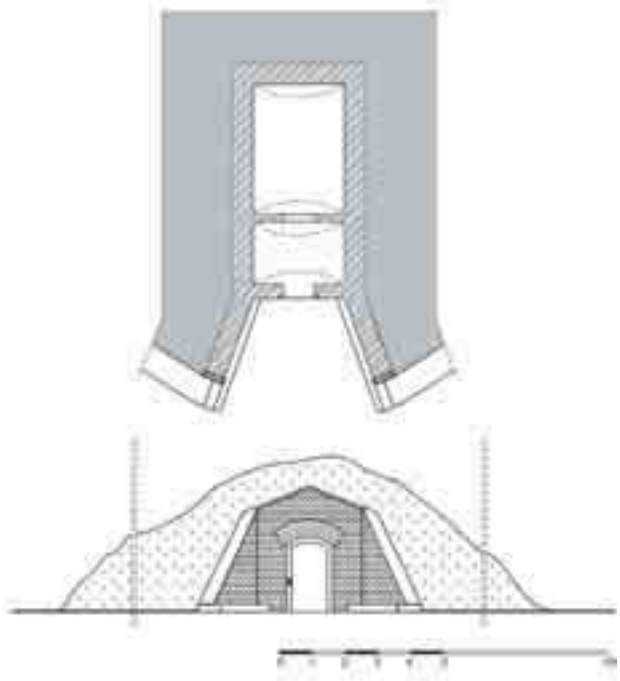


Fig. 12. Guardhouse – SW (drawn by the author)

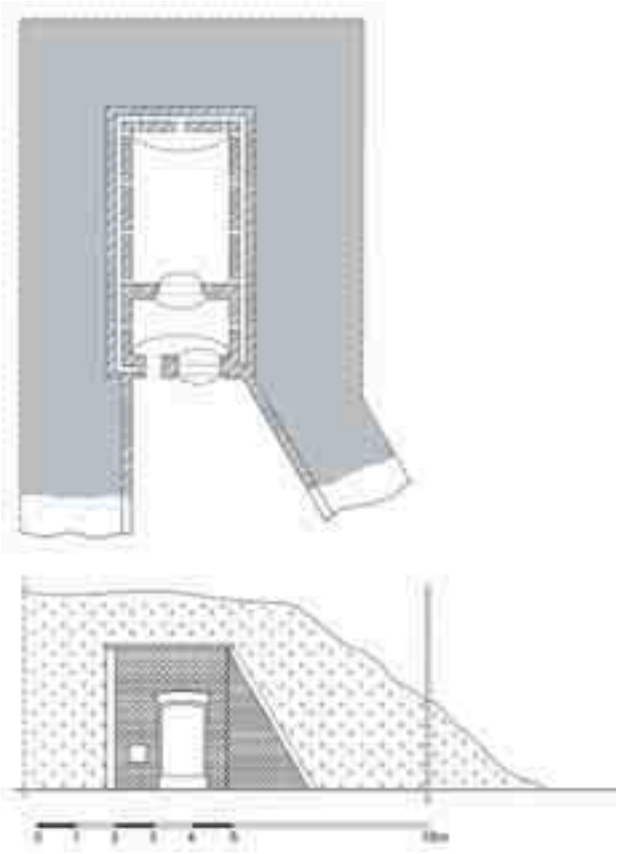


Fig. 13. Ammunition storehouse MA (drawn by the author)

Ammunition storehouse (MA)

Dimensions.

Width of the neck wall – 295 cm, height – 355 cm, depth of the interior – 525 cm. Thickness of the earth layer is about 120 cm. The total area of the interior – 13.4 m^2, cubature – 72.5 m^3.

Material: brick and sandstone earth embankment.

The vestibule and main room are vaulted probably in the form of a two-layer cradle; similarly, walls and floors are also made of two layers with a ventilating fissure. Around the room, there are ventilating holes in three layers.

Walls are dry; the brick floor is damp, erosion of the wall face of the neck wall. There are some remnants of lime plaster inside. Wall coping of revetment are destroyed.

Green areas (see chapter "Half-caponier (PK)")

Ammunition laboratory (LA)

Dimensions

Width of the neck wall – 1600 cm, height – 345 cm, depth of the interior – 440 cm. Thickness of the earth layer is about 100 cm. The total area of the interior – 38.2 m^2, cubature – 297.8 m^3.

Material: brick.

The arrangement, which was originally symmetric, contains two rooms vaulted in the form of a cradle on both sides of the pass (the northern one is walled up) which leads to the ammunition storehouse with a cross vault; then, two rooms with a vault in the form of a cradle (the northern one was destroyed, the southern was liquidated). The floor made of cement. Layered walls with a ventilating slot. A reconstruction probably took place in the first half of the 20th century; depth was shortened, rebuilding by means of cellular bricks, filling in the space above the cradle by means of crushed brick based on the cement mortar and liquidation of the southern room.

The object is in good technical condition; recently, it has undergone unfortunate renovation during which bricks and joints were painted on the vault. After renovation – walls are plastered.

Green areas

On the western side, the fighting slope of salient III is covered with plants in a similar way as on other salients. Again, the dominating species is the maple-tree (*Acer plantanoides*) which constitutes 90% of trees growing there. Apart from maple-trees we can also see there durmast trees (*Querqus robur*) and common hornbeam (*Carpinus betulus*).

The southern part is covered with trees which are maximally eight meters high. The highest ones are young trees of such species as ash-tree (*Fraxinus exelsior*) and maple-tree sycamore (*Acer pseudoplatanus*). This area is more densely covered with plants in the lower layers. There are mainly such plants as common lilac (*Syringa vulgaris*), whitethorn (*Crataegus monogyna*), white dogwood (*Cornus alba*) and more seldom species of verrucated birch (*Betula pendula*) which grow in concentrations of several trees.

On the inner part of the embankment, the most expansive species is blackthorn (*Prunus spinosa*); it is also covered by briar rose bushes (*Rosa canina*) and dewberry (*Rubus caesius*). Undergrowth consists of various species of grass and herb plants.

Neck caponier (KS)

Dimensions

Width of the neck wall – 630 cm, length – 1252 cm, height – 470 cm. Thickness of the earth layer is about 130 cm. The total area of the interior – 40.81 m^2, cubature – 370.7 m^3.

Material: brick, earth cover of the ceiling.

A cross-shaped cover with the apse on the axis, a brick floor. A brick cornice made of scantling, reconstructed entrance (in years past it was a bow-shaped, now – a flat lintel). There are two gates on both sides of the

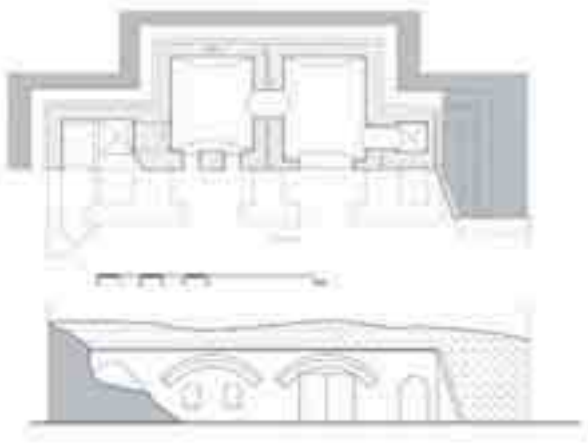


Fig. 14. Ammunition laboratory – LA (drawn by the author)

caponier; the western preserved one is walled up, whereas the eastern one is totally reconstructed. There are five shooting holes; two of them are walled up.

The wall and joints are mostly in good condition; a few cracks along the joints and some losses in the corners; some remnants of plaster on the neck wall side. Plants loosen a brick cornice; in the south-eastern part of the wall below the cornice there are serious losses of the wall face caused by dampness. The brick floor is preserved; the wall is damp at the bottom and a layer of lime, which constitutes the finishing of walls and the cradle of the vault, peels off. The preserved flap of the entrance gate is in bad condition.

Plants in the middle layer grow in small amounts and these are mainly self-sown plants of verrucated birch (*Betula pendula*) – 60%, maple-tree (*Acer plantanoides*) – 30% and white dogwood (*Cornus alba*) – 10%. Undergrowth consists of various species of grass and herb plants.

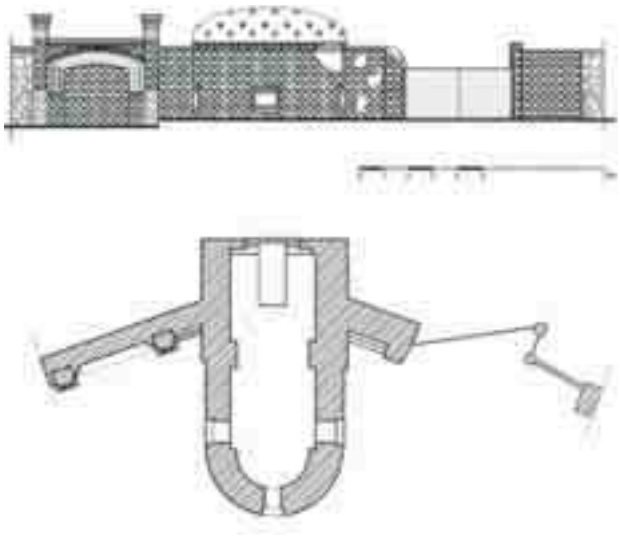


Fig. 15. Neck caponier – KS (drawn by the author)

General characteristics of green areas on the main rampart of the fort

Nowadays, the area of the fort is dominated by plants and green areas. This situation causes a total spacious deformation of the arrangement of the earth ramparts and makes it difficult to find fortification objects in this area. There are valuable species of plants which are characterized by their uniqueness, age and also landscape values in a given place. This area constitutes a shelter for many species of birds and mammals. This is a place of tremendous historical as well as architectonic values. Not only fans of fortifications can be fascinated by this site but it can also be a place of education for young people as well as a place of admiration of its beauty and it can attract ordinary people who go for a walk there. Old showpieces of trees emphasize the old foundations of the object, i.e. its uniqueness. Roots of trees, unless they do not make the walls break, contribute to a better solidity of the scarp ground. The walls are shadowed by crowns of trees, which reduce the destructive influence of the sun. The plants, which cover ramparts and moats, make us reflect upon the lapse of time; in the dark shadow of thickets we can imagine past events. The reigning silence in this place can be a great escape from noisy cities and summer heats. But at the same time, these plants are the reason of the walls' and scarps' destruction. Taking proper action concerning the liquidation of plants and new seedlings constitutes a very important issue [4].

In this area, there are also trees whose root systems endanger the wall structure. The following trees should be removed in the first place: 1) maple-tree sycamore (Acer pseudoplatanus; 2) durmast trees (*Querqus robur*); 3) wide-leaved linden (*Tilia platyphyllos*); 4) maple-tree (*Acer plantanoides*); 5) wide-leaved linden (*Tilia platyphyllos*); 6) verrucated birch (*Betula pendula*); 7) maple-tree (*Acer plantanoides*); 8) ash-tree (*Fraxinus exelsior*); 9–12) wide-leaved linden (*Tilia platyphyllos*).

Fig. 16. Inner moat of Prussia Fort. Entrance ramp on Rawelin Pomorze (photo: J. Potyrała)

General concept of revalorization

A monument of military architecture, which constitutes a great cultural value, should be generally accessible, supervised and taken care of. The physical condition of the fort is constantly becoming worse. Essential preservation works should be done as soon as possible in order to protect the building substance of the fort. To start preservation works, the necessary architectonic listing of the whole object should be carried out; the fullest historical documentation including stages of the fort's reconstructions should be collected. Only by doing this is it possible to start planning of a new function and designing the arrangement as well as the management of the area. The only chance to save the whole object and make it more lively, is to attribute a new

Fig. 17. Destructive influence of plants on the construction structure (photo: J. Potyrała)

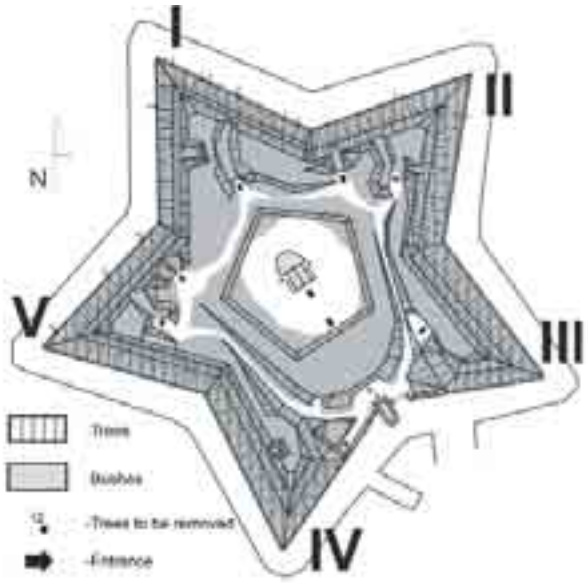


Fig. 18. Resource of plants on the main rampart of the fort (drawn by the author)

function to it taking into consideration all preservation requirements which must be obeyed.

The object should earn its own living and this would be the best solution with reference to different functions. Nevertheless, it cannot be an isolating function. Casemates of the underground shelter which are situated in the centre of the object give great opportunities of adaptation in order to fulfill various functions; however, undertaking building works in the area of the fort is connected with big costs.

It seems that at the beginning, tourist could be allowed to visit the area of the front crown and the main ramparts. This requires preservation works for the small objects mentioned earlier and corrections of green areas. The surface of ramparts was covered only with grass as early as at the beginning of the 20th century. It does not seem purposeful to remove all the trees and bushes from the ramparts. In order to make the defensive system more legible, it is necessary to remove self-sown plants and new roots up to 30 cm in circumference and the reduction of bushes so that they form just few smaller complexes between shelters. The planned process of cutting down big trees should be limited to those ones which destroy the structure of the wall and obscure the view axes (of fortification works and towards the direction of Fort II). The trees situated on the edges of salients shall emphasize their landscape dominants (similarly to the experiences of Srebrna Góra Stronghold). On the maidan it is possible to use specially shaped decorative plants as garrison greenery. Such gradual removal of the plants which cover the fort will not influence rapidly the environment conditions and the system of ground water and at the same time it will enable a better exposition of the object. It is necessary to reconstruct the earth ramparts following the repair of anti-damp insulation of the building structures and, finally, to turf the scarps again.

Translated by Bogusław Setkowicz

References

[1] Klose A., *Festung Neise*, Hagen, 1980.
[2] Małachowicz E., *Fortyfikacje pasma Sudetów,* [in.] L. Narębski (ed.), *Fortyfikacja*, vol. 5, Warszawa-Kraków 1998, p. 199–202
[3] Małachowicz M., *Twierdza Nysa – stan zachowania, wartości*, [in.] L. Narębski (ed.), *Fortyfikacja*, vol. 1, Warszawa 2000, p. 19–21.
[4] Potyrała J., Niedźwiecka-Filipiak I., *Krajobrazowe walory Fortu Prussia na terenie Twierdzy Nysa,* [in.] L. Narębski (ed.), *Fortyfikacja*,, vol. 16, Warszawa 2004, p. 307–315.

Architectus

2008
Nr 2(24)

Magdalena Baborska-Narożny*

Industry and infrastructure under green roof – different backgrounds, various solutions

Known since ancient times, roofs deliberately covered with plants are currently growing in popularity in highly developed countries.

The most intense research and technical experience gathering in green roofs takes place in Germany since the beginning of 80. in 20th century. In that country 25 million m^2 of green roofs were installed between 2000 and 2001 [7, p. 17]. Such development is the effect of the state policy. The municipalities of over 250 German cities and towns promote green roofs through various direct and indirect incentives. Many cities in other countries do the same, i.e. Linz in Austria, Basel in Switzerland, Ontario in Canada or also Beijing in China. In those places green roofs gradually become an important part of the urban cityscape. On the other hand in places where legal incentives do not exist green roofs are still rare. Some cities, eg. London, are now seeking to settle their own policies and regulations to promote green roofs in a way that would suit them best, i.e. best solve their specific problems. This tendency reveals that green roofs are treated as an efficient tool towards implementation of sustainable development in architecture [18].

Statistics for Great Britain claim, that building construction and maintenance is responsible for 48–50% of the country's total CO_2 emissions. As increasing emission of green-house gases, mainly CO_2, is regarded as the main reason behind global warming, the target of radical reduction of architecture's carbon footprint is gradually included in the policies of developed countries. CO_2 emission is mainly a by-product of building materials production, transport, construction process and interior microclimate control relaying mainly on fossil fuels. Increased presence of CO_2 in the atmosphere is also a result of forests' cutting and general decrease of green areas that absorb carbon dioxide and produce oxygen. Green buildings assessment systems like British BREEAM or American LEED concentrate on these issues [2]. Such assessment methods do not mention the green roof as a suggested solution for environmentally conscious design, nevertheless advantages that green roofs bring are highly scored [6, p. 34]. Apart from the diminishing of the carbon footprint, sustainable water management and encouragement for urban biodiversity are regarded as key targets of sustainable architecture. Green roofs are considered to be beneficial to the environment in all the foregoing aspects. Their supporters thus emphasise their positive influence on water management, indoor and immediate surrounding microclimate control. They also indicate that green roofs increase urban biodiversity, absorb carbon dioxide and airborne particles and produce oxygen.

This paper analyses specific reasons for the introduction of green roofs onto industrial and infrastructure buildings. At the same time it presents broad lines of green roofs growing popularity in architecture.

Green roof typology

Two main types of green roofs are classified: intensive and extensive. Intensive green roof, depending on the soil depth, may support a wide variety of plants: grass, flowers, shrubs and even trees. The plants on such a roof require cultivation, watering and fertilization like those in traditional gardens. Intensive green roof is usually planned as a recreation and leisure area. It is thus an important design issue to assure its accessibility. The positive effect of such spaces on life quality in the cities and also on increase of prices of overlooking estates is broadly discussed in literature [13, p. 5]. It is even promoted to use roofs for local food production. Intensive greening, due to its substantial

* Research Group of Industrial Buildings of the Department of Architecture of the Wrocław University of Technology.

load and high maintenance costs, is rarely introduced onto large areas of production or infrastructure buildings. It can be admired however on the Drinking Water Purification Plant in Whitney, USA and Antorini Winery in Barginio, Italy, both described further in this paper.

Extensive roofs are lightweight due to the thin substrate depth – ranging from 5 to 12 cm. They are also designed for minimum maintenance requirements. It may be enough to perform rainwater inlets cleaning and general inspection once a year. The most common plants used for the extensive roof are drought resistant sedum and other succulents (Fig. 1). A popular proprietary system is a sedum matt. This solution has dominated the roofs of industrial halls.

Fig. 1. Sedum cover on extensive roof one year after planting (photo: Mark Depreeuw)

On-site benefits for the owner and off-site benefits for the public

Introduction of the green roof impacts not only the building it covers but also its near and more remote surroundings. This influence may be analysed in different scales: building and site, vicinity and surroundings and even regional – global. What's more the same feature may be valuable both to the building's owner and to the surrounding area, or close vicinity and wide region.

In the **scale of a building** an undoubted private benefit is the extended durability of properly applied water proofing membrane. In Germany, a country with the biggest experience in green roofs, the manufacturers of EPDM type membranes give about 10 years longer warranty for their product if covered with green roof layers. Germans have also developed detailed building standards governing material use, construction principles and maintenance requirements of green roofs [8], [9]. However in Great Britain, where green roofs are still an emerging market, the warranty for water proofing is the same no matter what it is covered with. Longer durability of water proofing membrane generally is an asset for the environment at a global scale: slower damage means postponing the necessity to exchange the material for a new one.

The green roof is regarded as an improvement in a building's fire protection. Due to its mass it is also a good acoustic insulation. The performance of sound insulation depends on the depth of the substrate and it's moisture content [6, p. 8]. This feature may be regarded as an asset in some locations, e.g. in the proximity of airports.

A green roof is generally regarded to be beneficial to the environment, among other reasons, through it's influence on the microclimate of the interiors it covers. A pinpoint study of this influence in a 'typical' commercial property was carried out by Joanna Facer in her undergraduate project at Cambridge University in 2005. She compared data concerning costs and benefits to the environment of various greening features (mainly energy consumption and carbon dioxide emission) in two theoretical commercial properties: one 'greened' with natural ventilation and the other one with air-conditioning and no vegetation. Conclusions of her report challenge the popular explanation of environmental benefits of the green roof. According to her calculations, in British climate, green roof is beneficial because it supports natural ventilation, which makes it possible to avoid expansive and energy consuming air-conditioning. In Britain, natural ventilation is efficient, with the exception of short terms in the summer, when it is difficult to avoid the building's overheating. And this is where a green roof can make the difference. Through shading, evapotranspiration of plants and thermal mass of substrate it substantially diminishes temperature of the layer beneath the soil. An exposed black roof surface on a cloudless summer day can reach 80°C, and a corre-

sponding surface of roof covered with grass is only 27 °C. With expected 21 °C inside, the temperature difference on the roof drops from 59 °C to 6 °C which reduces the heat flow through the roof by 10 times [6, p. 26–27]. On the other hand thermal resistance of properly insulated roof (minimum thermal resistance for insulated roof according to Polish building regulations is U = 0,30 W/m^{2}K) remains almost the same, no matter if the roof is greened or not. The positive difference greening brings in this respect can be easily reduced with a few millimeters of additional thermal insulation. And that means that the green roof does not contribute to winter heating savings. Facer concludes that the green roof that is not a part of a broader passive design solutions does not give the building's owner major benefits neither in energy consumption nor in CO_2 emission. It facilitates however effective natural ventilation and that leads to significant economic savings and environmental benefits. In this paper there are two examples of environmentally sound industrial architecture that incorporates various passive design solutions, and green roofs among them. These are Ecover factory and A&C in Belgium. Both were designed by architect Mark Depreeuw.

Another argument for beneficial results of combining green roof with other sustainable solutions in one design comes as a conclusion of German research on positive mutual influence of photovoltaic-panels installed on the green roof. The vegetation cover diminishes roof surface temperature which leads to higher efficiency of photovoltaics. What is more the shade that panels cast on vegetation protects it from overheating and drying. In result the extensive vegetation becomes more diverse and significantly higher [10, p. 152]. Energy produced by PV system is the so-called 'green energy' which does not contribute to CO_2 emission increase. Global (public) benefis of its production are thus clear. In Germany the operator of an energetic network is obliged to receive it and to pay a price that is higher than that of 'standard' energy. Thus positive interaction between PV panels and greened roof gives the owner economic benefits.

It is difficult to evaluate economic benefits for the owner resulting from aesthetic value and functional potencial of the green roof. The intensive ones are usually additional or even the only outdoor recreational space for the buildings occupants. This asset is particularly important in dense city centers.

In the scale of **vicinity and surroundings** one of the most valued features is the green roof's ability to retain 40–50% of annual precipitation that falls on them and also to slow stormwater runoff to sewage system [5]. What is more, vegetation and soil filter rain water thus it leaves the roof cleaner than that from, eg. bituminous surface roof. Rapid increase of water flow in the sewage system in case of a gusty rainfall is a serious problem for many urban areas where impervious surface dominates. Redundant water causes the sewer's replention and overflow which results in pollution of the rivers. Rapid runoff rate increases flood threat. These where key reasons for implementing active policy to encourage green roofs in one of the most flood prone cities in Europe – Cologne in Germany [14, p. 34–35]. In the case of large areas of industrial halls stormwater retention is an important benefit of green roofs. The quantity of retaind and filtered water for roofs covering many acres is substantial. Sustainable water management and the goal of keeping all the rain water on site was one of the drives for designing green roofs on the Ecover factory in France or Ford in Dearborn in USA.

Another important benefit in the scale of surroundings (and globally) linked with green roofs is their impact on moderation of urban heat island effect. The urban heat island effect is the difference of even a few degrees in tempeature between a city and the surrounding countryside. This phenomenon was described after long term observation of large urban areas. It leads to many negative results, eg. interference of the water cycle (more rapid evaporation, more frequent storms), increase of energy consumption for air-conditioning (which additionally increases the outside temperature) and increase of smog. In the proces of evapotranspiration plants can cool the cities: they absorb heat from their surroundings when evaporating water. The plants also partly reflect solar energy. The mitigation of urban heat island effect and sustainable water management can bring economic benefits, that are estimated by each city planning its own green roof policy. A factor that is much more difficult to calculate although regarded as a benefit in the scale of vicinity is the aesthetic potential of a green roof. Landscape visual protection is sometimes an important issue integrated in development regulations. When planning large industrial or infrastructure premises in protected landscape green roofs often becomes an

Fig. 2. Various vegetation on a brownroof over staff facilities building in syenite mine in Niemcza, Poland. The picture is taken a year after the soil from the surroundings was elevated onto the roof. No vegetation was planted (photo: M. Baborska-Narożny)

obvious solution. This was the case in Baumgartner factory in Hagendorn, Switzerland (arch. Graber & Steiger), Benkert in Alterhausen, Germany (arch. Mario Botta), Rolls Royce factory in Goodwood, England (arch. Nicholas Grimshaw) and water purification plant in Whitney, USA (arch. Steven Holl).

The benefit that can be analysed in **a regional-global scale** is lowering of the carbon footprint of built up areas covered with vegetation and also increase in biodiversity of urban areas. Biodiversity seems especially important in densely built environment of city centres. The research into this problem proved that green roofs can help sustain rare species of birds, insects and plants. Finding that as an important asset led to the invention in the last few years of the so-called brownroof that remains a similar eco-system as brownfield. Nature scientists found that urban brownfields became rich and diverse ecosystems that could be preserved even when they aquire a new function. It is enough to lift the crushed rubble from the site onto the roof and leave it to self colonise (Fig. 2). The seeds of various plants come with the rubble or with the wind. This method was used to cover newly built roofing over platforms of a Zurich railway station and Laban dance centre in London (the first roof of the kind, arch. Herzog & de Meuron, 2002). A different reason stands behind the same solution of brownroof over administration and staff building in a syenite mine in Niemcza, Poland.

The green roof is also regarded as a means of improving air quality. Planted roofs remove airborn particles, volatile organic compounds and heavy metals.

Selected case studies

Lake water filtration plant in Wollishofen in Zurich

Fig. 3. Entrance into water filtration plant in Wollishofen in Zurich, Switzerland, is restricted for the employees. The meadows on top of the horizontal historic buildings remain invisible for a passer-by (photo: K. Kościuk)

Fig. 4. The orchids on the roof meadows of Zurich Water filtration plant could not be better protected in a nature reserve (photo: K. Kościuk)

One of the most imposing and at the same time forruning green roofs over an infrastructure building can be found in **Wollishofen** in Zurich, **Switzerland** [12]. The continually functioning structure was built as a lake **water filtration plant** and covered with soil in 1914. The city encompasses the northern part of the reservoir, which covers 70% of communal water consumption. The green roof was implemented because of its cooling effect known even at that time. It was essential to prevent the water that was slowly filtered through a layer of sand inside the building from overheating. The 3 ha roof divided in four separate sections is covered with a meadow, that now consists of 175 species, including many plants that are rare or endangered. Special enthusiasm evokes around 6000 specimen of (lat.) *Orchis morio* extinct in the region of Zurich. The whole variety of plants brings back the richness of flora

from the beginning of the 20th century. It came onto the roof either with the soil from the surrounding farmland that was lifted there or from the seeds blown with the wind. No plants were planted. The roof construction is ferroconcrete slab beams 8 cm thick, water proofed with 2 cm mastic ashalt. On top of that 5 cm of sand and gravel creates a drainage layer covered with 15–20 cm of soil. The two upper layers mixed with the passing of time, which did not result in any damage to impermeability of the roof. The specialists emphasise that since its construction there have been no technical defects like leaking that would require intervention. Until now the only reconstruction works carried out were at the edges. The roof divided into four separate parts rises about 4 m above the surrounding ground level. Public access to the roof is not possible. What is more it is not even visible for the passer-by (Figs. 3, 4). This botanic treasure is in direct vicinity of a motorway junction. There are propositions that Canton of Zurich should protect the vegetation on the roof.

The water filtration plant in Wollishofen proves that a large infrastructure building can successfully coexist with surrounding nature and even become it is important part.

Baumgartner window factory in Hagendorn, Switzerland

Similar expectations were formulated as a development regulation in the case of the Baumgartner window factory in Hagendorn, Switzerland [17]. The investor made enquiries with the authorities of the town Cham with the possibility to extend the existing factory with additional space of 18 000 m^2. Keeping the location of the factory in Hagendorn was essential since the company secures a majority of the jobs in the small village. Nevertheless this location was a source of serious debate since it lies in an agricultural zone of federally protection-worth landscapes (BLN). The resulting design is an effect of close co-operation between the investor, municipality representatives and designer, especially at the preliminary design stage. The municipality demanded an architectural competition, and obliged the owner to include the surrounding area into planning. Niklaus Graber and Christian Steiger from Luzern won the competition in 2001. They cooperated with landscape architect Stefan Koepfli. The planning that followed took almost five years. The construction was completed in 2006. According to the architects the structure functions as a hybrid of landscape and architecture [24]. The 18 000 m^2 roof is covered with a damp meadow. The roof is boldly cantilevered over the outside storage and delivery area. Such a meadow originally grew in this place, which is flood-land between the rivers Reuss and Lorze, before it was turned into a corn field. Like in the Zurich water filtration plant the local ground is lifted up onto the roof. In this case however the substrate mixture is elaborated, it consists in 50% of 15 cm of ground excavation from under the buildings' footprint and the rest is brick scrap. A special technical water system was developed to simulate natural conditions. A mock-up roof meadow was tested before the final construction was completed.

The horizontal meadow remains invisible from the ground level [22]. It plays a crucial role in the elimination of the need for production hall air-conditioning. What is apparent for a passer by is a wooden vertical structure that encompasses the whole building. This structure will be filled up with plants as they grow, creating a hedge reaching the roof hight.

Benkert bench factory in Alterhausen, Germany

The local development constraints were much the same as in Hanendornt and led to the inventive design of the Benkert factory in Alterhausen, Germany [3, p. 52–54]. The structure was built in 1996. The decision to green the roofs over two symmetrical production halls was an effect of close co-operation of the designer – architect Mario Botta, the investor and local authorities. The will to protect valuable landscape and unobstructed views was the starting point for the design. Location of the new development on top of the hill at some distance from the village was carefully selected. The architect proposed a building partially sank into the ground and covered with grass that continues on gentle slopes that reach the level of the surrounding terrain. In result the geometry of the hill remains almost unchanged and from some points of view the factory is difficult to notice at all. The factory design as well as whole production process integrates many environmentally friendly solutions. The green roof helps to keep the temperatures inside on a stable level.

Valuable landscape preservation and sustainable manufacturing principles were the main reasons behind the broad use of vegetation, including roofs, in **the Rolls-Royce factory in Goodwood** in southern England. The development designed by Nicholas Grimshaw opened in the year 2003. At that time it was the biggest green roof in the country, covering about 33 000 m^2. Among other public and private benefits, it proved to be a valuable habitat for many species of birds [4].

Similarly green roofs conceal a beautifully located **Antinori Winery in Barginio**, near Firenze, Italy. For over 600 years the Antinori family has been involved in wine making and their properties are continuously expanding. Their new development was designed by Marco Casamonti from Archea Associati in 2005 [15]. The construction is due to be finished by the end of 2008. The building is intended to go beyond its fundamental function, i.e. wine production, and is supposed to serve as a main attraction point of the region for enoturism enthusiasts (clients of tour services related to wine product). One hundred thousand

visitors are expected annually. What's more a kindergarten, bakery, library, workshop and some shops are also included in the program. Such a rich public offer was ment to be contained in the form that best expresses the culture of wine making. Among other means selected by the architect to achieve this goal intensive green roofs are the most striking and appealing feature. The whole structure dug into the slope of a hill is covered with the vineyard. Planted on the hill it continues without any disturbance on top of the building. Two horizontal cuts and some skylights let the sunlight into the interiors. Conceptual coherence rather than sustainable design principles seem to be the reason for the implementation of green roofs in this case. In their description of the design the architects do not mention any potential environmental benefits resulting from the vegetation on the roofs [21].

Ecover ecological detergents and the cleansing agents factory in Oostmalle, Belgium

The green roof over the Ecover factory in Oostmalle, Belgium, was introduced without any suggestions or incentives from local planning authorities. So far there are very few towns in Belgium that actively promote green roofs. Ecover is a manufacturer of ecological detergents and cleansing agents who received numerous awards as a sustainable entreprise [23]. Its factory in Oostmalle opened in the year 1992 and is regarded as the first ecological factory in the world. It was designed by architect Mark Depreeuw who is devoted to sustainable design in all his work. Among many solutions that legitimize the 'green' label attached to its architecture, the Oostmalle factory is covered with an extensive green roof covering 6000 m^2. Initially the roof was designed to be vegetated with grass. This proved to be a bad solution however, as far as sustainability was concerned, because with a 15 degrees roof grade and only a few centimeters substrate depth the grass dried in the summer month and required watering. Watering the roof was regarded by both the architect and the client as contradictory to sustainable architecture principles. In the year 2005 necessary repairs of the EDPM membrane were conducted and the whole vegetation layer was exchanged for a substrate covered with sedum. So far it functions without any further problems (Figs 5, 6).

Fig. 5. Entrance to Ecover factory in Oostmalle, Belgium. Sedum on the slightly pitched roof of the production hall is visible from the surroundings (photo: M. Depreeuw)

In the year 2007 Ecover opened another ecological factory in Boulogne-sur-Mer, France. The development is located in a newly established business park, Parc Paysager d'Activités de Landacres. The Landacres park is the first of this kind in Europe to have achieved the ISO 14001 certificate for environmental management. It is claimed that only enterprises doing business in a sustainable way can invest there. The first concept sketches were done by Mark Depreeuw. The whole project and construction of the building with a surface area of 11 300 m^2 was commissioned to the Japanese corporation Takenaka. The factory building process lasted since June 2006 until April 2007. Part of the building is two stories high. The extensive green roof covers 8000 m^2. The designers emphasise that the vegetated area of the roof is almost the same as the buildings footprint. In opposition to the above mentioned conclusions of Joanna Facer's research, the Takenaka architects claim, that the green roof not only minimises the need for interior summer cooling but also due to its insulation qualities helps cut the energy use for winter heating. Among other benefits of the green roof they outline rain water retention. The remaining volume of water that flows down the drain is caught into two containers 10 000 l each and after filtering it is used as grey water for toilet flushing. Numerous other design decisions were made with the aim to diminish the buildings environmental impact, eg. in the material selection process the basic criteria was whether it is recyclable, produced with the least amount of energy and with minimum environmental contamination from renewable raw material. Thus it was decided to avoid steel and aluminium and to maximise the use of wood and concreate [27].

In both Ecover factories the construction of the green roof was the result of the enterprise's own standards and expectations towards architecture. Buildings are regarded as an integral element of the company's consistent profile of sustainable, ecologically sound business.

Fig. 6. General view of Ecover factory in Oostmalle. The picture shows grass on the roof which was later exchanged for sedum (photo: archive of Mark Depreeuw)

Selected American buildings:

Water purification plant in Whitney, Connecticut, USA

Untill recently green roofs have been voluntary in the private sector in the USA [26]. The implemented green roof policies in, eg. Chicago, Portland or Toronto apply to public developments or receiving public assistance. Expected private benefit of the ower is the main incentive to install a green roof. Investing in the instruments of green architecture in industrial developments is often assumed helpful in building a coherent, economically driven identity of a sustainable business. The growing number of industrial premises applying for a voluntary environmental performance assesment, the so-called LEED, is an illustration of the trend [2]. What is more in some cases, notably with large infrastructure or industrial buildings, winning favourable opinion of local inhabitants may have influence on the location of a development and the whole process of gaining a building permit. Using green architecture tools, among others also green roofs, seems to be an effective method.

Such was the background of the design process of the water purification plant in Whitney, New Heaven in Connecticut, USA. The development at the early programming stage was ment to become an important element and attraction of East Rock municipal park. The site is within a picturesque protected landscape. The investor, South Central Connecticut Regional Water Authority expected protests from local inhabitants against plans to build in their vicinity a water purification plant that would serve the needs of half of the state. What is worse the technically ideal site happend to be an attractive green public leisure spot. Anticipating protests the investor assigned the project to a star architect Steven Holl. A spectacular green design was developed. Green features include sustainable material choice, water management, creation of diverse ecosystems for migrating birds and the biggest green roof in the state [20]. The structure is merged into the surrounding landscape. The whole volume is partially sunk into the ground. The green roof plane smoothly continues in one direction to melt with the neighbouring hill. The proposed scheme turned the infrastructure building into a landscape feature and an educational facility with public access. The site, the green roof over the major volume and vertical greenery were designed by landscape architects Michael Van Valkenburgh Associates. The green roof became the main attraction of the building as an unusual educational space open to the public. The varied vegetation is planted on the roof in a way that metaphorically reflects and explains the technological processes going on underneath. In the background of the vegetation one extravagant longitudinal element is exposed. In a 110 m long form, covered with reflective stainless steel skin, technical spaces, laboratories, lecture rooms and conference facilities are located. The design gained full support of the local community and the building was completed in the year 2005. In 2007 it was granted the AIA COTE Top Ten Award [1].

Ford Motor Company River Rouge Plant, Dearborn, Michigan, USA

En example of a green roof functioning as a sign of sustainable manufacturing is the development of the Ford Motor Company in Dearborn, Michigan, USA.

The construction of a public observation tower with a view onto the vegetated roof was planned at the preliminary design stage. No public access to the extensive roof

covering area of 40 000 m^2 was planned. The Ford's premises in Dearborn, where the new production halls are located, are the icon of American industry in the 20th century [2]. It is a popular tourist point of interest. The decision of the company's shift towards sustainable manufacturing was to be illustrated with the revitalisation of the River Rouge brownfield. William McDonough a prominent architect among sustainable design advocates was assigned the whole revitalisation project. Various environment friendly features were thus included into the design. Some of them experimental. The green roof, completed in the year 2002, is one of the most visible ones. Most of the outlined above benefits of a vegetated roof, public and private, were taken into account. The architect and investor proudly announce that for a few years now the roof has been a nesting place of the Killdeer; a bird rarely seen in the region. In the year 2004 the development won the Green Roofs for Healthy Cities Award of Excellence in the Extensive Industrial Commercial category [25].

Conclusions

The insight into the green roof's impact on their surroundings, not only the direct vicinity (eg. through their water retaining quality they help prevent river contamination), well illustrates how complex are the effects and side-effects of building for the habitats. How single developments compose to create the intricate structure of modern cities, that cause new problems to the environment, not anticipated earlier, and only observed as they grow. There is a wide agreement that a single green roof has no positive impact on an urban environment. Though it is estimated that a major investment in large areas of vegetated roofs could make a substantial difference in solving the existing problems, eg. water management, heat island effect, urban biodiversity [9]. The private and public benefits would grow if the minimum area of the roofs was vegetated. What exactly is the required proportion is subject of research so far [16, p. 13]. As there are difficulties in estimating private financial benefits of installing a green roof [14, p. 7], and on the other hand it is proved that there are various public benefits, a major growth of green roof industry is strongly dependent on the support of state or local policies. Industrial premises because of their large size and infrastructures because of their public funding are often the first building types obliged to be vegetated [11]. Industrial architecture also often serves as a showcase and proof of the investor's commitment to green issues. Thus all types of vegetation can be found on the roofs of industrial and infrastructure buildings, though extensive sedum roofs strongly dominate.

References

[1] Alter R., *Steven Holl's Whitney Water Purification Facility*, Toronto 2007, http://www.treehugger.com/files/2007/05/steven_holls_wh.php

[2] Baborska-Narożny M., *Architektura obiektów przemysłowych w kontekście idei zrównoważonego rozwoju – wybrane rozwiązania amerykańskie*, "Architectus" 2007, no. 1–2 (21–22), p. 109–114.

[3] Baborska-Narożny M., Brzezicki M., *Estetyka i technika w architekturze przemysłowej – wybrane problemy na przykładach z lat 1985–2005*, Wrocław 2008.

[4] Burgess H., *An assessment of the potential of green roofs for bird conservation in the UK*, 2004 http://www.livingroofs.org/images/BirdsOnRoofs.pdf

[5] Dunnet N., *Green roofs; the forgotten elements in urban storm water management*, http://www.watersave.uk.net/Presentations/Nigel_Dunnett.pdf

[6] Facer J., *The Role of 'Greening' in Commercial Property Development*, Cambridge University 2005, http://www.livingroofs.org/livingpages/researchgeneralgreenroof.html

[7] Gedge D., Frith M., *Green roofs; Benefits and cost implications. A report for Sustainable Eastside*, London 2004, http://www.sustainableeastside.net/Green%20Roofs%20Report%202.07.05.pdf

[8] Koehler M., *A German legacy of green roofs, New Roofs Seminar*, April 7th 2003, New York 2003, www.hsnb.de/lu/mankoehler/download/Contribution2003.doc

[9] Koehler M., *Plant Survival Research and Biodiversity: Lessons from Europe*, mat. konf. Greening Rooftops for Sustainable Communities, Chicago 2003, http://www.hsnb.de/lu/mankoehler/download/05-Koehler.pdf

[10] Koehler M., Schmidt M., Laar M., Wachsmann U., Krauter S., *Photovoltaic-panels on Green Roofs*, [in:] Krauter S.C.W. (ed.), *RIO 02 – World Climate and Energy Event–Book of Proceedings*, Rio de Janeiro 2002, p. 151–158, http://www.fh-nb.de/lu/mankoehler/download/Rio_dach.pdf

[11] Maurer E. (ed.), *Green Roof City Linz*, Municipal board of Linz Urban Planning Department 2008, http://www.efbgreen-roof.eu/verband/aktuell/LINZ_presentation.pdf

[12] *Moss lake water filtration plant in Wollishofen (Zurich), Hochschule Wadenswill* http://www.livingroofs.org/New-Files/-03%20Moos%20lake%20water%20filtration%20plant%20in%20Wollishofen%20Zurich.pdf

[13] Newton J., Gedge D., Early P., Wilson S., *Building Greener; Guidance on the use of green roofs, green walls and complementary features on buildings*, London 2007.

[14] Ngan G., *Green Roof Policies: Tools for Encouraging Sustainable Design*, 2004 http://www.gnla.ca/assets/Policy%20report.pdf

[15] Olszańska I., *(Nie)winny krajobraz*, "Architektura & Biznes" 2008, no 7–8 (192–193), p. 66–67.

[16] Peck S.W., *Laying Foundations for the Green Roof Industry, mat. konf. Greening Rooftops for Sustainable Communities*, Portland June 2–4, 2004, http://www.greenroofs.org/resources/peck-2004.pdf

[17] Pfaff L., *Doppelte Landschaft*, http://www.nextroom.at/building_article.php?building_id=28948&article_id=25445

[18] Samangooei M., *Green Spaces in the Sky; What role do green roofs play in a twenty-first century city?*, Oxford Brookes University, 2006, http://www.livingroofs.org/livingpages/researchgeneral-greenroof.html

[19] www.aiahouston.org/cote/GREEN-ROOFS-public benefits.pdf

[20] http://www.aiatopten.org/pdf_2007/WhitneyWaterBoard.pdf

[21] http://www.archea.it

[22] http://architekturbild.ch/static/020245.D.html

[23] http;//www.ecover.com

[24] http://www.graberundsteiger.ch/oeff_bauten/hagendorn_text.html

[25] http://www.greenroofs.com/projects/pview.php?id=12

[26] http://www.roofmeadow.com

[27] http://www.takenaka.co.jp/takenaka_e/pr0704/m0704_01.html

Architectus

2008
Nr 2(24)

Dariusz Dziubiński, Łukasz Wojciechowski*

New urban planning: cityscape – a tool of transformation and arrangement of the city space

A decline of the idea of the city based on industry gave rise to the city of information whose structure is characterized by incoherence and chaos. A growing significance of flow and exchange as well as dependence of building of a city on infrastructure and mobility have led to dispersion of the city and to the situation where a polycentric arrangement is formed in which the system of exchanging information is more significant than spatial dependencies, order or hierarchy. Former cities, which had a coherent structure, owed their arrangement to, first of all, stable economy and a legible structure of the society. Nowadays, the economic system of advanced capitalism constitutes the basic factor which arranges urban areas and this, in turn, leads to the deepening degeneration of the existing historical structures, which was already started by modernism.

A number of obvious advantages which are a feature of the existing urban complexes in city centers are a starting point and the basis for new investments. An attractive urban tissue and architectonic value consist mainly in a strong spatial awareness and location. Also important is the aspect of historical depth of a place which is strongly rooted in the residents' awareness and functioning as the centre for a local community. The awareness of the necessity to have a central point defines historical structures as centers of urban activities. This is an ideal basis for development.

On the other hand, chaotic actions and lack of precise tools for organizing investments are the factors which lead to the formation of one-dimensional offer concentrated on unlimited consumption. Balanced commercialism, in spite of dangers, may have a positive influence on supporting and enriching the program. Cooperation between private and public sectors, which is practiced in Western Europe, consists in the creation of new opportunities for the neglected public property through the formation of appropriate conditions of cooperation in order to achieve mutual profits. Thanks to the suitable decision instruments, it is possible to work out the rule *something for something* which is based upon the integration of purely commercial activities with the formation of a cultural cityscape. The development which comprises both the need for profit and the public interest provides the city structure with the increase in a place's attractiveness as regards commercial offer and social value. The process of building strong dependencies by engaging various parties in a joint enterprise is made possible thanks to the creation of coherent political, financial and spatial strategy.

A comprehensive approach to a fragment of a city as regards the space is possible thanks to new techniques which are based upon the principles of landscape formation. Assuming that a given landscape consists of particular elements of a various scale and expression which constitute one coherent spatial composition, we can specify the goal of landscape techniques in the city planning aiming at achieving coherence of a given urban structure.

Presentation of a detailed urban concept against dependencies on changeable market conditions and a lack of possibility to specify precisely the needs of future investors is not the goal of urban planners. On the other hand, a possibility to introduce future changes, i.e. the assumption of maximum flexibility of the project cannot become a reason for too general directives. The aim of modern city planning is specification of imperative goals and the ways of making them stable. This is possible, among others, thanks to the usage of landscape in designing the urban space.

There are miscellaneous methods of the landscape usage in the city planning and they depend on location as well as on individual spatial conditions. It is not only possible to use a natural land form and the landscape elements as the imperative ones in the future complex but also to create an artificial basis or background for the existing components as well as for the designed ones.

* Chair of Spatial Planning of the Department of Architecture of the Wrocław University of Technology.

Fig. 1. Project for the city of Paisajismo in Argentina (photo:author)

The general rule is clearly illustrated in the project for Paisajismo a town in Argentina (Fig. 1). The plain area of eighty hectares, which has neither characteristic elements of the land form nor architectonic objects, was covered with a strip arrangement of greenery and recreation areas. The direction of strips is directly determined by the transport system. As a result, the artificial landscape of open areas creates new conditions which were characteristic for the so far anonymous terrain and constitutes a homogenous background for the future investments. Elements of housing estate complexes as well as objects of public utility were freely arranged on "the green carpet" and were connected by a legible transport system. The designing of the landscape as a starting point for the project made it possible to create a homogenous, uniform and elastic system which in turn enabled the staging process and further development.

A similar principle can be observed in the proposal of the Bernard Tschumie Business Park for Chartres. Long rows of newly planted trees in the whole area determine the spatial expression of this area and form a new landscape in this part of the town. Arranging the area of 240 hectares in this way constitutes the element of a long-term strategy. Sport and recreation infrastructure was planned between the lines. The landscape constitutes the mechanism of organization and control of the future land development with a minimum number of details in the plan.

The two above mentioned projects assume the creation of a new environment which is capable of coping with the task of building the identity of the place. These works are concerned with non-urban and uncharacteristic areas. The cityscape created in this way is the basic element of spatial organization.

The employment of the landscape design technique enables the formation of spatial coherence with functional diversity. If various elements of the program are governed by an imperative principle, it is possible to arrive at a comprehensive urban and architectonic layout understood as a uniform and multifunctional element. Such an action creates possibilities of efficient fitting of new buildings into the existent urban tissue.

A spectacular example of the formation of an artificial landscape in order to standardize a complex spatial intervention is the project of a public transportation terminal in Strasburg (Fig. 2) (Zaha Hadid Architects). The idea of the project is based on permeation of planes and lines which are generated by the movement of cars, trams, bikes and pedestrians. Each of the constituents of the project was subordinated to the concept of determination of a legible connection between the parking place and the station. Slight sloping of the area is further continued in the fact that the lamps bend and so do the lines limiting the parking places. The railway station shelter, thanks to the standardization of materials and controlled crossing of directions in three dimensions, becomes an integral part of the parking place slab which constitutes its extension. The standardization of all constituents of the layout both in the urban scale as well as in the details caused a formation of the uniform structure where open and limited spaces intermingle. With reference to the surrounding development, the layout constitutes an abstract landscape formed on the basis of transportation connections. The example depicts a possibility to construct a landscape as an autonomic structure which does not refer to the spatial context in a traditional way. A complex connection of architectural and infrastructural elements gives a new urban quality of the place. At the same time, thanks to the land form and scale, the layout constitutes an artificial continuation of the area topography.

The project for the Mullerpier district in Rotterdam presents the employment of the area as an urban binder in a different way (Fig. 3) (Kees Christiaanse Architecture

Fig. 2. Project of the public transport terminal in Strasbourg, Zaha Hadid Architects

& Planning). Blocks of flats of diverse forms were evenly planned in the area of the former sports terrains. An individual architectonic expression of each of the buildings contributes to the spatial richness of the layout. The objects were integrated by means of the floor which surrounds them. A "carpet" of open public space was formed where architectonic sculptures designed by local architects were put as if they were toys. Thanks to the employment of the landscape through the standardization of the floor character, the effect of uniformity of the open area was achieved despite the fact that the architecture of objects is different.

An artificial landscape generated by the designer may constitute the basis or binder for the existing or future development. Thanks to such solutions, there is a possibility of an efficient organization of open areas and a way to determine the area of a given urban group.

The building of the new post office in Scherpenheuvel, Zichem (Fig. 4) (Neutelings Riedijk Architekten) fits in the immediate surroundings in a similar way. In respect of the fact that there is a historical object on the plot, the new development was entirely subordinated to this object. Architects offered the formation of the new cubature as the basis on which the already existing post office was "put". The object in the shape of a tray was formed on which a historical building was "served". The formation of the most immediate artificial surrounding of the historical building in this tricky way gives it a new value – raises it to the rank of a symbol – the most extraordinary piece of art. The whole cubature of the new object was put back and covered with a floor which curls up on it.

The above example shows that a careful and resourceful formation of an artificial landscape in the surroundings of a particular significant value may contribute to rising of the rank of the place as well as to underline unique architectonic values of the existing objects.

The project of revitalization of a historical quarter in Salerno presents a complex intervention in the existing urban structure of a particular historical value in order to raise its utilitarian values. A new layer was introduced into the existing tissue whose aim is to determine directions in the mediaeval labyrinth of streets and to enrich the offer of open areas with multifunctional squares and gardens. Thanks to the employment of the system of signs which determine functions, distances, directions

Fig. 3. Project for district of Mullerpier in Rotterdam, Kees Christiaanse Architecture & Planning

Fig. 4. The New postoffice building in Scherpenheuvel Zichem, Neutelings Riedijk Architekten

and levels, the space was given a new quality without spoiling its original character. A subtle designation of the place constitutes a graphic activity rather than the spatial one; however, it influences the existing space so that it is united in the form of a legible group. The new layer resembles a map which was used in the real scale, which in turn gives it almost an abstract expression. Japanese architects joined together two realities – mediaeval buildings with a multi-media floor. This concept assumes their parallel existence – an ephemeral information membrane does not disturb a possibility to experience the space; moreover, it improves its working. An artificial landscape in an unusually synthetic form was designed – by means of projecting a map – universal information – onto the area of the project.

We present our own attempt at the employment of the land formation technique in order to revitalize and develop the existing urban structure in form of the above considerations and examples. The project concerns Tumska Street in Płock (Fig. 5). This street is the main shopping centre in this city. The local authorities plan to sell a part of the plot to private investors and they look for the method of arranging the space as well as raising its quality. Tumska Street is divided into three sections by means of crossing streets. Our aim is to give this street the quality of a representative salon of the city and to uniform the character of the urban space on its whole length. The main assumption is to construct a uniform background which is made of elevations of newly-designed buildings and the floor. This effect was

Fig. 5. Project of Tumska Street in Płock, Studio Fold

achieved through the material and color uniformity of facades and the pavement for pedestrians. The basic material of the floor constitutes stone slabs in sober colors which are put evenly as well as in a uniform rhythm along the whole street. These slabs form a neutral background for the remaining elements of its design. Newly-designed elevations of buildings suit the service quality of the floor and form a discreet background for the existing historical buildings. Façades are uniform with reduced details and resemble stone blocks perforated with windows. Flexibility is planned while forming new facades. Each of the objects, in spite of the uniformity of basic materials, can be perforated with windows of a specified height in a free way without any influence on the expression of the street. We have a general impression of the ordered arrangement of Tumska Street frontage; exhibited historical buildings dominate over new spare facades which, in spite of employing very simple means, have a unique character. In order to avoid spatial disarray which was caused by chaotically placed advertisement boards and signboards, a special information system was designed. In the part of upper floors of buildings we plan semitransparent plates which will be fixed perpendicularly to the elevation. Transparency of signboards provides a minimal intervention into the order of facades and their rhythmical arrangement results from fitting the character divisions along the whole street. Thanks to such an organization, we are able to preserve a unique character of the place and to avoid a chaotic influence of commercialization on its image.

The above projects present an outline of possibilities how to employ a landscape which is constructed in architecture and urban planning. By means of this general principle, we can solve a wide range of problems both on the architectural scale and the urban scale. We can distinctly see a conceptual connection of the spatial interventions presented in this article and in the broad perspective it is possible to single out a legible trend in architecture and urban planning which is based on the formation of an artificial landscape.

Translated by Bogusław Setkowicz

References

[1] Christiaanse K., *The city as loft*, "Topos" 2000, no. 29.
[2] Christiaanse K., Christiaans P., Van Ommen I., *Kees Christiaanse*, *Projects*, Uitgeverij 010 Publishers, Rotterdam 1999.
[3] Hadid Z., *Tram Terminal*, "Casabella" 2001, no. 702, p. 78–87
[4] Ibelings H. (ed.), *Artificial landscape*, Nai Publishers, Rotterdam 2000.
[5] Mapelli E. (ed.), *Alejandro Zaera Polo. Order out of Chaos*, [in:] *Urban Environments*, Wiley-Academy 2001.
[6] Smets M., *Grid, Casco, Clearing, Montage*, "Topos" 2002, no 38, p. 128–129.
[7] Tschumi B., *Event Cities*, MIT Press, Cambridge 1984
[8] *Kazuyo Sejima, Ruye Nishizawa*, "The Japan Architect" 1999, no. 35
[90] *Kazuyo Sejima, Ruye Nishizawa*, 1995–2000, El Croquis, 99
[10] *Neutelings & Riedijk*, 1992–1999, El Croquis'94
[11] *Operative topographies*, Qaderns 220.
[12] *Zaha Hadid 1996–2001*, El Croquis 103

Drawn by the M. Hutna

Architectus

2008
Nr 2(24)

Presentations

The First Certified Passive House in Poland

In November 2007 a certified passive house was opened to public for the first time in Poland. The house designed and built (in Smolec near Wrocław) by "Lipińscy Domy" Design Office has been visited by thousands of those who are interested in the issue of energy saving. The idea of living without heating is effective also in our country.

The Concept of Passive House

Over 20 years ago the creators of the Passive House Concept – Dr Wolfgang Feist and Prof. Bo Adamson, set themselves a target to decrease the losses of house heat so that it would need almost no heating. The passive sources of heat such as humans, household devices, and heat recovered from the air, passive gains from natural sources, and solar energy would satisfy the demand for heat to a great extent. For this reason the standards of building passive houses were specified. In 1991 the first passive house was constructed in Darmstadt in Germany. For the next fifteen years the concept of the passive house was consistently implemented. A few thousand houses have been constructed so far. The concept of passive houses is successfully used also in the construction of the multi-family houses and commercial buildings.

In 1996 the Passivhaus-Institut (the Passive House Institute) was established in Darmstadt. The Institute is managed by Dr Wolfgang Feist and operates as an independent research entity. The researches of different scientific fields work out highly efficient solutions for energy saving in construction; they also help to implement the concept of the passive house. They focus on the optimisation of components for their construction. The Institute organises conferences, trainings, and trade fairs in reference to passive building. The concept of the passive house is winning more and more supporters. Several hundred enthusiasts and sceptics of the new idea participated in the first conference organised in 1996 in Darmstadt. This year scientists from all over the world took part in the conference on the Passive Houses in Nuremberg. Passive houses are being built already in the United States, China, and Russia. Obviously, the greatest amount of such houses was constructed in a neighbouring country, namely Germany – the cradle of the concept. During annual passive building fairs participants are introduced to material and technological offers. Large producers of construction materials as well as enthusiastic inventors creating the systems of building passive houses present their products, which are developed for the sake of the passive houses.

A passive house can be constructed with the use of various technologies and components. Facing the increase of the energy prices, more and more private investors are becoming interested in the concept of the passive house. The awareness of cost saving as well as the comfort of living in a passive house is higher. Every year in November the Passive House Institute in Darmstadt organises the so-called open days in new passive buildings. Such an event provides an opportunity to realise what is the quality of the climate obtained in a passive house and to meet investors directly. A characteristic feature is that the occupants of such houses are satisfied with the climate and especially with the minimal bills for heating. When used normally, the passive house consumes not more than ca. 1.5 litre of fuel oil or 1.5 m^3 of gas (15 kWh) per one m^2 of the living space during a year. This allows for about 90% of savings in relation to the average demand for heating in the existing houses and at the same time constitutes the consumption value four times lower than in the case of a low-energy house (50–70 kWh/m^2 per year). Such a house is characterised primarily by remarkable thermal insulation, the optimisation of passive solar

gains, and controlled heat recovery ventilation. The mutual correlation between gaining and giving up the heat is important for the final balance. Giving up the heat takes place through ventilation and transmissions (losses of heat through walls, windows, and roofs). Gaining the heat occurs through the so-called internal gains (human and animal body heat, the heat of the household equipment, etc.), passive solar gains via glazing in the southern façade of buildings, and thermal gains from ventilation as a result of the use of exchangers in the house installations. In the houses in which insulation is insufficient transmission losses are so significant that the solar and internal gains are disregarded. Whereas in the passive house the passive solar gains are optimized due to the southern windows and transmission losses are dramatically reduced thanks to the superinsulation employed in the house and to its compact shape. The losses of the ventilated air are compensated by means of heat exchangers.

Project

The architecture of the passive house refers to an archetype of a single-family home. A simple compact shape projected on a rectangular plan and covered with a pitched roof integrates perfectly with the Polish urban landscape. The proportions of the roof and the walls were designed to be similar as in a traditional house. The only element enriching the mass of the house is a triangular lucarne on the façade with a window lightening the bathroom. The window shapes were designed according to the energy standards. The maximisation of the solar gains was reached thanks to an appropriate location of windows in the house façade. Big windows on the southern façade of the house not only guarantee heat efficiency provided by rays of sunlight but also give a modern touch to the house architecture emphasised by a solar energy collector on the roof surface. The size of the windows on the remaining walls was selected in order to guarantee conformity with the Polish outdoor lighting standards and minimise heat losses. Purposefully, the northern façade was designed not as a full wall; a full façade could spoil the appearance of the architecture and make it less attractive. This issue was solved by means of the traditional approach, yet with certain innovation. It is the effect of large glazed surfaces constituting the walls of the dinning room and the lounge. The house is designed for a four-person family or alternatively for an extended family. You will find a place for house works - a hobby room. The lounge with a mezzanine constitutes the space for daily activities. The big glazed southern façade makes the interior optically larger. The house is very spacious, despite its relatively small area (usable floor area – 131.4 m^2). The kitchen, which is connected with the dining room, also includes a room for a device substituting a traditional heating medium. The openwork steps will take you to the attic divided into two rooms for children with a terrace over the garage, a spacious bedroom with a dressing room for parents, and a bathroom well equipped and full of light. And the mezzanine perfectly unites the interior. The design and the structure guarantee a maximum limitation of heat losses and the greatest efficiency of the sun's heat at the same time. The compact character of the building has been confirmed by the shape coefficient of 0.75, and the independent garage placed on the western wall plays the role of a heat buffer. The project gained an energy label issued by the Institute of Passive Buildings (Instytut Budynków Pasywnych) by the National Energy Conservation Agency (Narodowa Agencja Poszanowania Energii), according to which the calculated requirement for heat amounts to 13.7 kWh/m^2 a year with the ideal building location in relation to four directions.

Fig. 1. Visualisation of the northern façade

Fig. 2. Visualisation of the southern façade

Technology

We worked for half a year over the design and concept in reference to the choice of materials and technologies necessary to complete the passive house. We performed a market analysis on the availability and quality of materials. Basing on the products available on our market, the expert team of the design agency Lipińscy Domy has worked out technologically innovative solution in cooperation with "Instytut

Budynków Pasywnych przy NAPE" (Passive Buildings Institute at NAPE). This solution made it possible to construct a passive house being in line with the standards of the Darmstadt PHI in Poland. We decided to apply simple solutions generally accepted in Poland, which would be of good quality and for a reasonable price. The construction of external dividing structures was subordinated to the maximum limitation of heat losses resulting from the penetration. Standard construction guidelines for passive houses suggest that the value of the *U* heat penetration coefficient of the external walls, floors, ceilings, and roof should not exceed 0.15 W/m²K. During the design process we realised that the house will meet the passivity standard in the climate conditions characteristic for the vicinity of Wrocław if the average *U* coefficient of the external dividing structures reaches 0.1 W/m²K. In order to reach such a low coefficient, we had to apply insulation layers 30–44 cm thick and very good insulation materials. The house is built on the strip foundation being traditional in Poland and which supports the foundation walls reaching the ground level. We carefully planned the thermal insulation of the foundations and the floor slab resting upon foundation walls. Nevertheless, even perfectly insulated external dividing structures cannot guarantee the passivity standard if thermal bridges are not excluded from the house structure. Thermal bridges appearing in arcades or in the places where an insulation layer breaks or as a result of unevenness of the dividing structure should be totally excluded from passive buildings. It is extremely important to provide an unbroken insulation layer in the external dividing structures and in their junctions. We managed to meet this requirement almost everywhere in the completed project. The foundation walls were the only place where we did not manage to have the insulation layer unbroken. In order to reduce the vertical thermal bridge cooling down the walls of the house, we used base course thermal insulation hollow bricks. The Poles are extremely attached to the brick technology. The offer was prepared as the "complete passive house", so we used prefabricated elements. For individual investors, however, we developed a project in the technology of Silka calcium-silicate brick. The technology of prefabricated walls from gravelite-concrete seemed to be a good compromise. The producer's additional colouring in a brick colour highlights the fact that it is the ceramic material. And this is important in a country where its inhabitants are antagonised by the large panel building. The asset of the prefabricated technology in the passive construction is a great accumulation capacity of the gravelite-concrete prefabricated elements. The level of the solar gains in a passive house does not always equal its current requirement for heat and this can result in overheating of the building. In order to avoid this phenomenon, the exceeding levels of heat should be stored to be released later when the temperature in the house decreases. The direct accumulation in the solid house structure constitutes the simplest way of heat storage. Its appropriate usage beneficially impacts the utility comfort of a passive building and its energy balance. We used the unique silver-grey polystyrene foam for the house insulation. At present, this is the warmest material available on the Polish market. The boards are enriched with a graphite composition improving their insulation properties. This polystyrene foam is produced on the basis of the innovative Neopor raw material. Its thermal conduction coefficient is record-breaking and equals λ = 0.031 W/mK. The window frames used in the house guarantee perfect thermal parameters and also the tightness required in a passive house. The house is equipped with mechanical ventilation including the heat recovery function with the use of a compact device suitable for passive houses. This compact device is equipped with an integrated exhaust and blow-in air handling unit with a counter-current heat exchanger. In order to improve the efficiency of the ventilation devices, we installed a ground exchanger.

Fig. 3. Projection of the ground floor

Fig. 4. Projection of the attic

Performance

The house was built in a beautiful area of newly constructed detached houses in Smolec near Wrocław (Lower Silesian province). The building orientation differs slightly from the project assumptions. The garden façade of a big glazed surface is directed towards the South-West and not towards the South. This difference was taken into consideration in the energy calculations which confirmed that the passivity standard will be met also in this orientation. The construction works were started by placing the ground heat exchanger. The pipes were arranged below the freezing line 1.5–2.0 m deep. The ground heat exchanger is to guarantee that during the winter the temperature of the air penetrating the building will not fall below zero degrees. However, during hot summers the air going through the ground heat exchanger will be cooled to pleasant temperatures. Then a trained team performed ground works, and constructed foundations, a slab of reinforced concrete, and floors. A well designed and fixed insulation of divisions touching the ground is a very important aspect. The house has no basement which simplified its structure. The slab of reinforced concrete was insulated with a 30 cm layer of the waterproof polystyrene foam having very good insulation parameters (the thermal conduction coefficient λ = 0.035 W/mK, and the finishing casing around the building was added). It allowed the floor touching the ground to reach the coefficient of U = 0.11 W/m^{2}K. A few days after the construction of the slab of reinforced concrete the walls were installed. The prefabricated technology of gravelite-concrete facilitated the fast construction of the external walls. We obtained the external partitioning whose penetration coefficient is Uo = 0.10 W/m^{2}K by means of the additional polystyrene foam insulation. The prefabricated technology's advantage is its relatively thin supporting structure of 15 cm. It is particularly important for the general thickness of a wall insulated by a 30 cm insulation layer. The use of a thin supporting wall allowed to avoid the "bunker effect" possible to occur in passive buildings. The roof truss was built in the traditional manner. Then the works of thermal insulation, woodwork and insulation installation started. A layer of the special self-supporting polystyrene foam (20 cm) enriched with graphite and having the thermal conduction coefficient λ = 0.033 W/mK was inserted between rafters. Polystyrene foam boards (10 cm) were fixed under the rafters and polystyrene foam panels (15 cm), extruded to be inserted under roofing tiles and without additional laths, were placed over the rafters on the layer of the OSB boards. The total thickness of the roof insulation is 45 cm. As a result of the application of the three-layer insulation system the heat penetration coefficient reached U = 0.08 W/m^{2}K, which is especially important, for heat losses through the roof can have a significant influence on the energy balance of the building. The windows were constructed of sections whose heat penetration rate is U = 0.7 W/m^{2}K. The system obtained the certificate of the Darmstadt Institute of Passive Houses (Instytut Domów Pasywnych Darmstadt) selected in reference to the construction of passive buildings. A unique structure of the sections guarantees perfect thermal parameters and also the required tightness. It is especially important in the case of the front door. The front door of the coefficient of U = 0.8 W/m^{2}K meets all the requirements of passive buildings in reference to the thermal insulation and tightness against air penetration. The window panes also have very good parameters. The set of insulated glass, whose heat penetration coefficient is U = 0.6 W/m^{2}K, was used in the house. Such good thermal parameters were possible due to the application of the low-emission coatings and filling space between the panes with argon. The g rate of the total permeability of sunlight equals 0.52. The application of such a modern woodwork allowed for the average U coefficient for all the windows of 0.72 W/m^{2}K. We used special bands for the building insulation. Tightness is essential in the construction of a passive house. The effectiveness of all solutions applied in the passive house, whose target was to limit the uncontrolled infiltration of the external air, was tested by means of the pressure test. We obtained a very good result of n5 0= 0.3 1/h. As a result of the application of complete solutions in reference to the house architecture and the structure, the heat requirement of that building was significantly limited.

Once the house was examined whether it lives up to Passivhouse standards during an energy assessment, the building obtained the certificate of PHI in Darmstadt. The certificate was formally awarded during a conference dedicated to passive houses – 11 Passivhaustagung 2007 in Bregenz. Our house was presented as the first passive building constructed in Central and East Europe. The house is the first certified passive building in Poland. The heat requirement in the standard heating season for the house constructed in Smolec near Wrocław is 15 Kwh/m^{2}a. Such a house constructed in accordance with the valid Polish standards will need 123 kWh/m^{2}a, hence over eight times more.

Showpiece Building

The legal regulations concerning the building energy ratings will soon come into effect in Poland. On the eve of this event only experts are aware of the influence such legal regulations shall have on the entire real estate market. Unfortunately, the average investor still builds the same houses, although the energy standards in the construction industry will soon change to such an extent that his or her house will become too expensive to maintain and hence to sell at a profit. It is worth constructing the buildings which meet the standards introduced by the European Regulation on Energy of 2002 and taking minimal energy requirements into consideration, for they will undoubtedly evolve to pas-

sive house standards. A house is an investment for many years. The first certified passive house in Smolec near Wrocław in Poland has become a showpiece building, whose role is to promote the concept of energy saving in our country. It serves as a presentation of materials and technological solutions for the energy efficient construction. Also trainings pertaining to this subject matter are organised for executors and individual investors. Everyone can learn how comfortable it is to live in a house without heating.

Ludwika Juchniewicz-Lipińska,
Translated by "Lector"

Fig. 5. Open space in the living room with additional light from large glazed windows

Fig. 6. What is more, the mezzazine enhances the effect of spaciousness in the living room.

References

[1] Feist W., *Gestaltungsgrundlagen Passivhäuser*, Das Beispiel, Darmstadt 2000.
[2] Forstner M., *Vakekuumgedammtes Nullheizenergiehaus: Planung. Bau, Passivhauszertifikat*, Tagungsband Passivhaus Institut, Darmstadt 2006.
[3] Feist W., Pfluger R., Kaufann B., Schniders J., Kah O., *Passivhaus Projektierungs Paket. PHI*, Darmstadt 2004.
[4] Krapmeier H., *11 Internationale Passivhaustagung 2007*, Tagungsband Energieinstitut Vararlberg, Bregenz 2007.
[5] Passivhaus Dienstleistung Gmbh: *Innovative Passivhausprojekte*. Objektdokumentation, Darmstadt 2007.

Drawn by the A. Szerszeń

Architectus

2008
Nr 2(24)

Our masters

Witold Lipiński – architect, author of the famous "dishes" on the Śnieżka mountain

Witold Lipiński was born on the 14th of November 1923 in Kosaki, near Łomża.

In 1939 he attended a middle school in Łomża. His education was disrupted as a result of the outbreak of the Second World War. In autumn he joined the ranks of Fighting Poland (Polska Walcząca) and afterwards, due to organisational changes in the underground, he became a soldier of the Home Army (Armia Krajowa) (1939–1946).

He served under the command of Jan Taborowski – Bruzda, under the pseudonym of Szczedroń. He was a liaison officer of the Inspector of the 3rd Inspectorate of the Home Army.

He was distinguished in numerous operations organised by Bruzda. Among the most difficult ones we can name "Tempest" – an unsuccessful rescue of Lieutenant Józef Ramontowski, who had been arrested by the Gestapo and the rescue of Franciszka Ramontowska from a hospital in Białystok, she was wounded by the NKVD during an attempted escape. For his service in the underground he was decorated with the Cross of Merit with Swords and the Cross of Valour. He was promoted to the rank of Officer Cadet.

After the war he completed a secondary school of general education in Łomża.

In 1946 he came to Wrocław with a group of friends to continue his education at the university at Bruzda's prompting, partly to avoid persecutions connected with his service in the Home Army.

In 1950 he graduated from the Faculty of Architecture, Wrocław University of Technology. Before graduation, as a fourth-year student he started working as an academic teacher, and in 1951 he was employed as an assistant lecturer.

In 1956 he became a lecturer following the defence of his doctoral dissertation entitled: *Application of Flame Spraying of Ceramic Glazes for Colour Coatings in Architecture* and in 1979 a reader, having obtained the post-doctoral degree. He wrote a monograph on

Fig. 1. Witold Lipiński

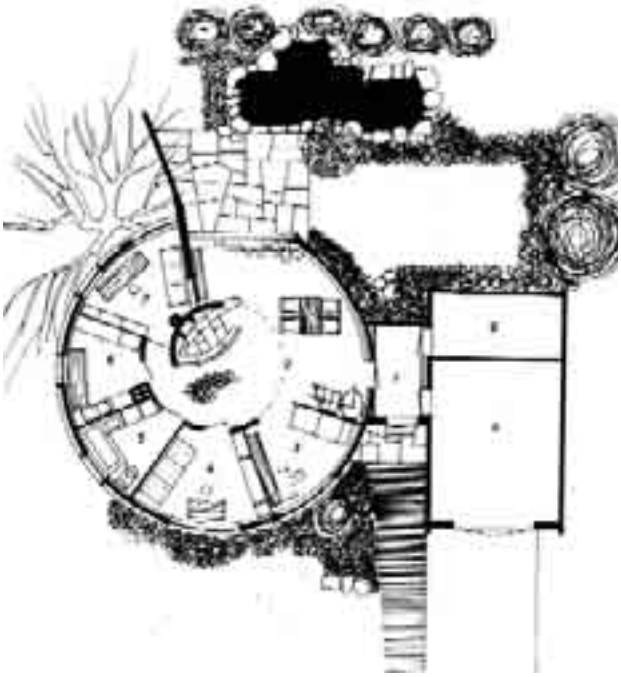


Fig. 2. Own house – plan

vaulted covering forms. In 1990 he was appointed professor and was awarded the title of Professor of Science.

Parallel with his academic work, he worked professionally as a designer. During his studies he worked in "Arkady" the Student Production Association, then in the Wrocław Town-project, in the Architectural Documentation Unit of the Wrocław University of Technology and in the Auxiliary Enterprise Unit, Institute of Architecture and Town Planning.

During the years 1973–1983, he was employed part-time at the State School of Fine Arts in Wrocław.

Witold Lipiński supervised 13 successful registrations and conferment procedures for a doctoral degree, a few of which were distinguished with a Vice-Chancellor's Award.

In the mid-1970s, he formed a school of bioclimatic architecture. Students of the school produced designs of houses with innovative perspective on housing environment competing with the most outstanding world achievements in those years.

Fig. 3. Own house

During his active work at the university, he performed many important functions, among others he was the Director of the Institute of Architecture and Town Planning and the Head of the Housing Department. At the same time he was the Chairman of the Association of Polish Architects (SARP), a member of the city and voivodship architectural commissions, a SARP expert, a member of the Wrocław Branch of the Polish Academy of Sciences. From the very beginning up to retirement in 1993 he also was the Chairman of NSSZ "Solidarność" at the Wrocław Faculty of Architecture. For work he had performed, Lipiński obtained numerous distinctions and awards. The Golden Cross of Merit, the Knight's Cross of the Order of Polonia Restituta, the Golden Badge of the Wrocław University of Technology and the Medal of the Commission of National Education.

Professor Lipiński conducted numerous research and development works. They included designs, experiments, structural works as well as numerous research studies. He was a co-author of a patent dated 1974 called: "Method of erecting multi-storey buildings".

Many designs produced by him were carried out. The most important ones include an urban planning and architectural design of Kościuszki Square in Wrocław (1956), remodelling and conversion of the Orlinek Hotel (1958), a holiday centre of the Wrocław University of Technology in Ustka (1964), a holiday centre in

Fig. 4. A scale model of the meteorological observatory on Śnieżka

Fig. 5. The observatory on Śnieżka – present condition

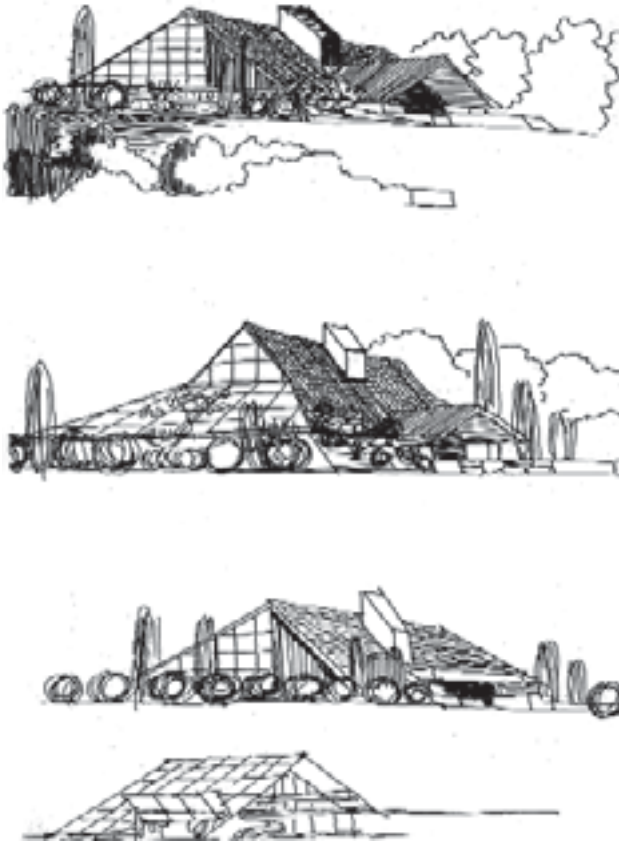


Fig. 6. Houses with a green room – sketches

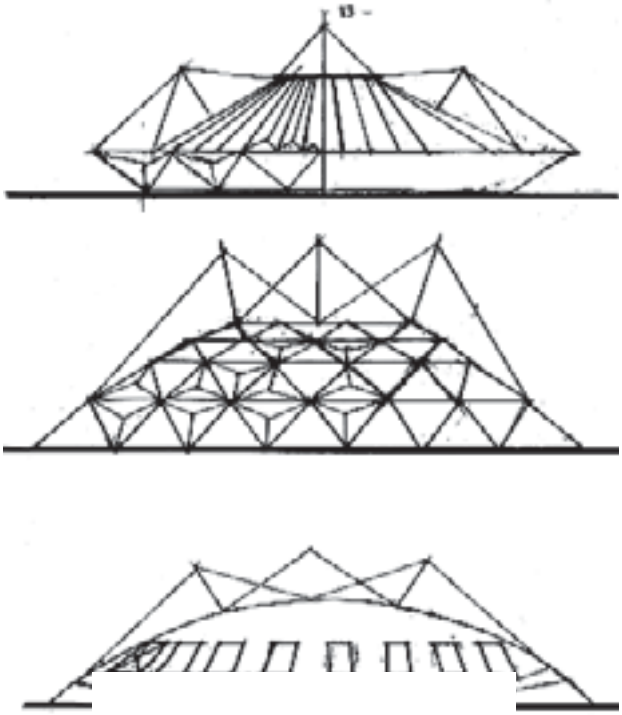


Fig. 7. Tent structures – sketches

Rokitki (1968), conversion and reconstruction of architectural monuments in Wrocław in Kazimierza Wielkiego Street (1969).

The most famous works created by Professor Lipiński, which earned him a place in the history of Polish Architecture, are: a hostel and observatory of the State Hydrological and Meteorological Institute in the Karkonosze, on Śnieżka (1959–1964) as well as his own house in Wrocław (1963). For the design and a scale model of the observatory he was distinguished with the 1st award at the World Exhibition of Architecture in Mexico.

Both facilities have been widely discussed in numerous articles and publications. Two very interesting opinions given by persons who knew Professor Lipiński well are worth mentioning. Professor Witold Molicki, a well-known architect and a friend of Lipiński commented on the observatory in the following way: "It was a hit that moved the world. Nowhere else anything like that had been created" and next, about the genesis of the discs "they are connected with the arising myth of discs in which aliens will visit our globe. They remind us about it. There is some kind of sign in them. 60 years after the return of the Karkonosze within the borders of Poland this is our symbol at the top of Śnieżka. Let it last.

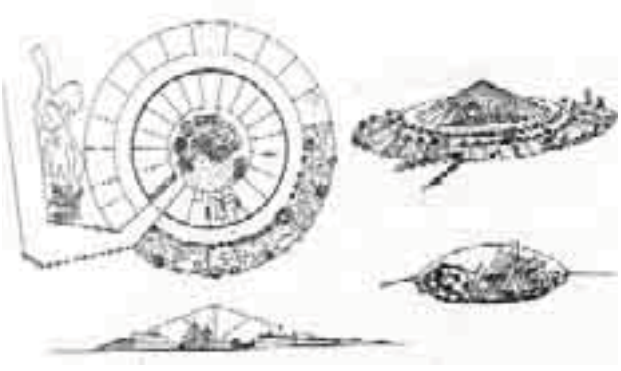


Fig. 8. Air-supported structures – sketches

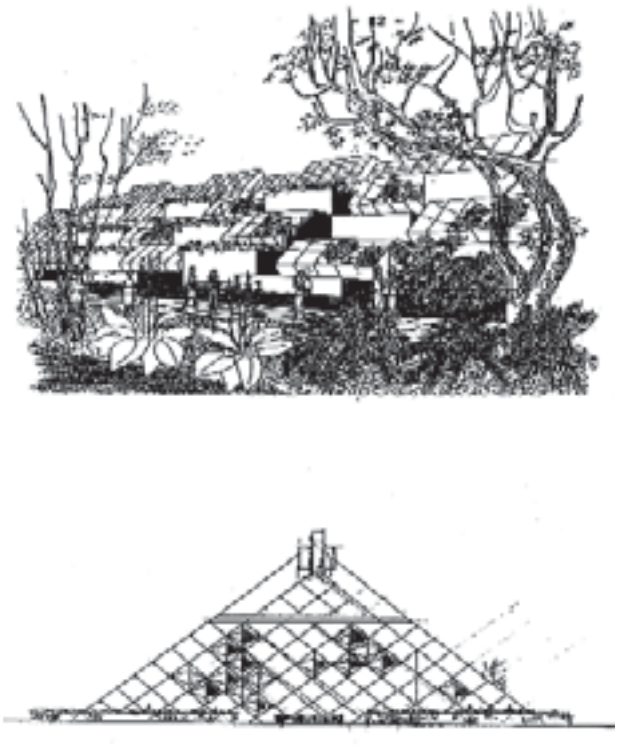


Fig. 9. Pyramidal structures – sketches

Fig. 10. Witold Lipiński

In the context of the above and the next opinion, it is worth mentioning that Witold Lipiński was a glider pilot. He flew in the Karkonosze many times where he was awarded aviation decorations. He underwent training in a gliding school in Jeżów Sudecki. There was a crash and great emotions connected with it. Two gliders crashed and the pilots had to rescue themselves jumping with parachutes. The whole situation was described in a book entitled *Między startem a lądowaniem* (*Between Take-off and Landing*) by the other crash participant Mieczysław Kozdra. He also presented his perspective on the observatory on Śnieżka. "A disc-shaped structure unambiguously associates with aviation, cosmos and outer space. If Witek had not experienced the air adventure, he probably would not have created such a splendid facility. For me this structure is a specific monument to an aviator looking for great experiences in the infinity".

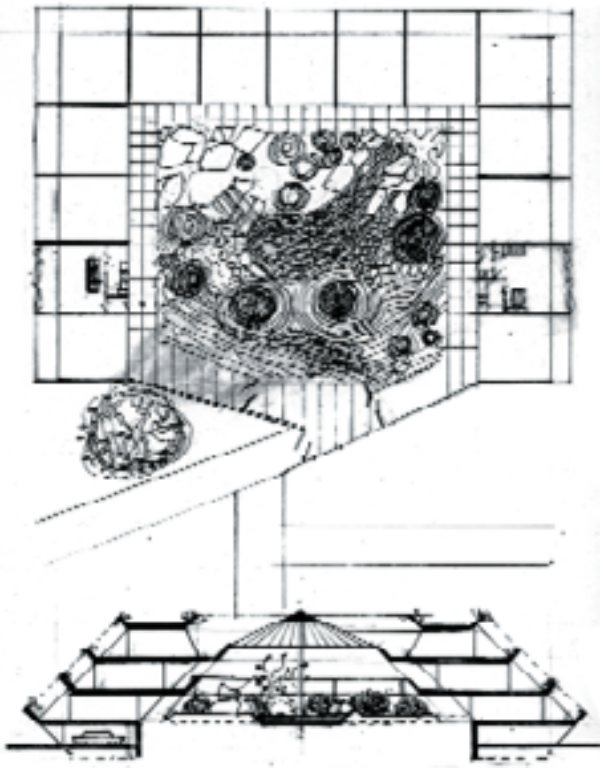


Fig. 11. Systems with a patio – sketches

Miłosz Lipiński
Translated by "Lector"

Architectus

2008
Nr 2(24)

Reports

The presentation of Awards by the Polish National Committee of the International Council on Monuments and Sites (ICOMOS)

The presentation of the Professor Jan Zachwatowicz Awards took place on October 27, 2008 in the Grand Hall of the Royal Castle in Warsaw on the 25th anniversary of the Professor's death. The General Preservation Officer and the Polish National Committee of International Council on Monuments and Sites (ICOMOS) presented two first awards for excellent achievements in the field of research and protection of monuments and sites. Architect Lilia Onyszczenko-Szwec, Preservation Officer in Lvov, was awarded as the co-author of a book on architectural details of Lvov buildings in the 19th and 20th centuries. The laudatory speech was given by Professor Krzysztof Pawłowski. Due to the fact that the nominee was at the time in the USA, the Award was received on her behalf by the representatives of the Ukrainian embassy. Professor Zygmunt Świechowski was awarded for his impressive contribution to the knowledge of Romanesque architecture. The laudatory speech was given by Professor Ewa Łużyniecka.

The Awards, sponsored by Krystyna Zachwatowicz-Wajda, the daughter of Professor Jan Zachwatowicz, and the distinguished Polish film director, Andrzej Wajda, were also presented to graduate students. 26 graduation works (2 foreign and 24 works from 6 Polish universities) were submitted for the annual international Professor Jan Zachwatowicz ICOMOS Competition for the best university graduation works in the year 2006–2007. Two first prizes and four distinctions were awarded. The first prizes were presented to the Architecture Students Scientific Circle from the Technical University of Łódz for the results of 10 scientific expeditions to the Eastern Carpathian Mountains in the Ukraine "Hutsul Land 2007", and to Diana Polkowska from the Department of Architecture at the Warsaw University of Technology for the paper regarding the development of tourism in Przemyśl. The distinctions were presented to: Jaryna Panoczko from the National University of "Lwiwska Politechnika" for the project of restoration of the St. Basil monastery compound in Dobromil; Anna Kunkel from the Department of Architecture at Warsaw University of Technology for the project of adaptation of the Dominicans' monastery in Sandomierz; Adriana Cieślak from the Institute of Architecture and Urban Planning at the Technical University of Łódz for the study of spatial development of the historic Center "Calvary Hill" as well as Luiza Baran and Adriana Ciołek from the Department of Civil and Sanitary Engineering at the Lublin University of Technology for the protection project of the south-east tower of the castle in Janowiec.

Professor Zygmunt Świechowski prize winner of the Professor Jan Zachwatowicz Award. Laudatory speech by Ewa Łużyniecka

I would like to begin by presenting briefly the most significant facts from the Professor's life.

Professor Świechowski was born in 1920 in Poszerzuwie. In the years 1928–1933 he attended a Polish junior high school in Poniewież and in the years 1934–1939 the Sułkowski Junior High School in Rydzyn. In 1945, he began to study art history at Adam Mickiewicz University in Poznań under the supervision of Professor Szczęsny Dettlaff. In the years 1945–1947, he worked as assistant in the division of graphic arts at the Greater Poland Museum and in the years 1947–1948 as assistant in the Department of Art History at UAM. In 1948, he was awarded the master's

Fig. 1. Speech of Professor Andrzej Rottermund, Director of the Royal Castle in Warsaw during the presentation of the awards in the Grand Hall (photo: E. Łużyniecka)

degree on the basis of the thesis entitled *Granite Architecture of Western Pomerania*; a year later he was appointed assistant in the Institute of Polish Architecture at the Warsaw University of Technology; in 1950, he defended the doctoral dissertation entitled *The Cistercian Abbey in Sulejów*. While working at the university he was appointed (1951–1963) director of the division of studies and documentation at the State Enterprise of Monuments and Sites Preservation Shops. In 1955, after the title of assistant professor was conferred upon him Z. Świechowski took the position of the head of monuments and sites preservation section at the Institute of Polish Architecture at the Warsaw University of Technology. In the years 1956–1957, he had a scholarship granted by the Centre d'Etudes Supérieures de Civilisation Médiévale. In the years 1963–1978, he held the position of head of the department of Art History at the University of Wrocław – he resigned when he took the position of head of Research and Preservation Team in the Management Board of the State Enterprise of Monuments and Sites Preservation Shops. In 1967, the State Council conferred upon Professor Świechowski the scientific title of associate professor, and in 1986 the title of full professor of arts. In the years 1979–1994, the Professor headed the Institute of Architecture and Urban Planning at the Technical University of Łódz for three terms of office until his retirement in 1990. In 1991, he became President of the "Patria Polonorum" Association – an organization affiliated with "Europa Nostra". In the years 1995–2000, he headed the research program of the Ministry of Culture and Art "The Millennium of the Council of Gniezno" and in 2002 he organized the exhibition in Brugge on the Polish contribution to the preservation of monuments and sites in the Ukraine and Belarus.

Since his early youth the Professor's scientific interests were directed towards historical problems and early art. As a teenager he documented road shrines and numerous wooden crosses placed in village homesteads in his homeland of Żmudź. In the 1930s, they suffered destruction during the process of the enclosure of land, which resulted in the liquidation of single road villages for the benefit of dispersed building planning. He began his studies of art history at the university much later than originally planned due to World War II. However, as a result of Professor Świechowski's intensive work he completed the studies at the University of Poznań in three years, started work at the museum and at the university as an assistant.

At that time the Professor was fascinated by medieval architecture of the so-called Regained Territories and studied the unexplored subject of granite architecture of parish churches in Western Pomerania. At the same time he closely cooperated with the Poznań Western Institute and wrote some chapters for the monograph on Western Pomerania as well as Varmia and Masuria. The publications written at that time on European Romanesque and Gothic art remained, for many years to come, the only source of information for junior high school and university students of arts.

The proposal offered to him by Professor Jan Zachwatowicz to move as assistant to the Institute of Polish Architecture at the Warsaw University of Technology was the turning point for Zygmunt Świechowski in his scientific career. There, the Professor participated in preparing the first edition of the album of Polish architecture (he received an honorary diploma of the Technical Publications for that); at the same time he was working on the first volume of the history of Polish architecture according to Oskar Sosnowski's program and collecting materials regarding Cistercian architecture of Little Poland, which ended in the defense of his doctoral dissertation on the Cistercian Abbey in Sulejów.

Since that moment the Professor's most important research objective was to collect a list of historic masonry buildings, as complete as possible, erected by the middle of the 18th century. The first attempt in that area was the monograph etitled *Silesian Architecture until the Middle of the 18th Century*. This conception was approved by the Committee for Research on the Beginnings of the Polish State at the Polish Academy of Sciences. With the help of the Committee it took the Professor three years (1953–1956) to develop a catalog etitled *Romanesque Buildings in Poland* published in 1963. This work played an important role in developing research and preservation programs regarding this area of building. Due to its extensive summary in French, the book was in the international circulation and was critically acclaimed abroad.

The political breakthrough in 1956 was also a great breakthrough in the scientific career of Professor Świechowski. The scholarship granted by the Centre Supérieures de Civilisation Médiévale in Poitiers and the help of his relatives in London enabled him to go on a year-long trip and visit the historic monuments of Romanesque architecture in France and Italy. On that trip he also visited buildings which are less known and difficult to access. Professor Świechowski did not neglect Polish topics – he wrote some chapters in the great two-volume monograph on the cathedral in Gniezno as well as numerous articles also published abroad (e.g. in Zeitschrift für Österreichische Denkmalpflege, Cahiers de Civilisation Médiévale, materials for the international congress on Art History in Paris, Zeitschrift für Kunstgeschichte and Zeitschrift für Kunstwissenschaft).

Furthermore, the Professor was also interested in Western Romanesque art. In 1973, he published a book on architectural sculpture entitled *Sculpture romane d'Auvergne in French* and nine years later – together with Albert Rizzi and Richard Haman – he published a book in Italian entitled *Patere e Foremelle* with photographs of one thousand and five hundred unknown architectural sculptures in Venetian palaces from the 11th–13th centuries. In 1980, Professor published *Romanesque Art in Poland* a book with editions in four languages.

In the 1990s, the Professor took to interpreting new archeological research findings in which he participated as head or consultant, e.g. in Trzemeszno, Mogilno, Strzelno. He also continued to work on the new edition of the catalog of Romanesque architecture published in 2000. Also he, presented new views on Romanesque art in the book entitled Romanesque Art published as the first volume in the series of "Polish Art" (2004). Over the last few years the Professor's research activity was dominated by two topics. The first of them taken up after a 50-year-long break deals with the Cistercian abbeys in Little Poland. The other is connected with dating medieval architecture with the use of analysis of carbon 14C particles which can be found in mortars.

Over the period of a few decades Professor Świechowski was editor of such joint publications as *Art of Western Pomerania* (1973), *History of Silesian Art* (1978), *Wrocław, its History and Culture* (1978), S*ettlements and Architecture of Polish Land in the Times of the Council of Gniezno* (2000).

Fig. 2. Professor Andrzej Tomaszewski, Andrzej Wajda and Danuta Kłosek-Kozłowska, Ph.D. presenting the awards for student works (photo: E. Łużyniecka)

The Professor always paid attention to proper popularization, not only during his studies. In 1997, he started the series etitled "On the Trails of Polish Millennium" with the participation of distinguished architecture historians. His scientific research work was presented to the public during his numerous lectures in Poland and abroad in the Sorbonne, University of London, Strasbourg, Cologne, Central Institute of Art History in Munich, University in Berlin. Another form of promotion of his research was his active participation in symposiums and international congresses such as congresses of art history in Paris, Bonn, Granada and Bologna, to name a few, as well as the cooperation with many eminent art historians such as Professor Ludwik Grodecki and Andre Grabar from the Sorbonne, Jerzy Żarnecki in London, Otto v. Simson, Director of the Institute of Art History in Berlin, Professor Krönig from Cologne and his successor Günter Binding.

The works on the preservation of historic buildings are also an important area of the Professor's activities. While working at the university he was working in posts responsible for the protection and preservation of historic buildings. At first he was assistant to Professor Stanisław Herbst in the office for historical studies at the Ministry of Culture and later he took the position of Director of Documentation Department at the State Enterprise of Monuments and Sites Preservation Shops. While holding this position he developed and implemented a model of a research paper to precede preservation work and its check list. As a result a few thousand documentations were developed with correct preservation assumptions and planned construction works which are a valuable source today. Many of those studies were the first and still remain the only scientific research of given objects. Undoubtedly it was an achievement on the European scale. The Professor practically never lost touch with the preservation issues, working in numerous preservation commissions holding the position of the chairperson of the committee supervising the process of intensive preservation work in the cathedral in Gniezno since 1996. At present he is consultant of the preservation and renovation works carried out in Tum near Łęczyca, and problems connected with the restoration and extension of the Museum of Architecture in Wrocław which is housed in the building compound of the former Bernardine monastery.

Speech of Professor Zygmunt Świechowski

Being honored with the Jan Zachwatowicz Award, I would like first of all to thank the founders of this prestigious award – the General Preservation Officer as well as Krystyna Zachwatowicz and Andrzej Wajda, and the gracious laudatory speaker – Professor Ewa Łużyniecka – a prominent researcher of medieval architecture, chairperson of the jury – Professor Andrzej Tomaszewski – with whom I share scientific interests and memories of good old times. To be honest, I was truly surprised with the decision of the jury. When I was young the only association I had with distinctions was connected with military merit. I would listen to the stories of my father's father – Edward who as a young lieutenant on the night of November 17th to 18th in 1877 fighting at close quarters in charge of a company conquered the Turkish fortress of Kars. The motivation of the order to present him with the military distinction and promotion read: "for valor and cold blood." The other idol of my youth was my father's brother – Stefan who was a great brawler, four times awarded with the Virtuti Militari Cross of Valor.

How pale does the CV of an architecture historian look in comparison to theirs! It is, after all, a safe and healthy profession spent in the attics and on the towers where the only danger one can face comes from the spiders disturbed by intruders destroying their webs, scared bats flying away or owls blinded with the flashlight. Climbing ladders, scaffoldings or rickety stairs and squeezing through narrow passages improves physical fitness. The reward which is immanently connected with the work of an architecture researcher is the incomparable esthetic experiences provided by the direct, and not only visual but also haptic contact with a work of architecture. A great satisfaction comes from small discoveries – registering unaccountable features whose compilation sometimes causes a revision of former views on a specific building, its original shape and chronology.

That is why my first impression was that I am awarded for something that has already been generously recognized. At my age, when I am about to enter the state which used to be called in an old academic song as *molesta senectus – burdensome aging,* a confirmation that

Fig. 3. Professor Zygmunt Świechowski after the presentation of the awards (photo: E. Łużyniecka)

somebody has done something sensible in life is priceless. It is for me especially important that the patron of this award is Jan Zachwatowicz – a man who greatly and positively influenced my life. It is the logic of coincidence that it is exactly 60 years after I presented my master's thesis entitled *Granite Architecture of Western Pomerania* at the Poznań Society of Friends of Science. During my presentation I noticed among the listeners an elegant middle-aged man whom I did not know. This was Professor Zachwatowicz who was at that very time creating the Institute of Polish Architecture at Warsaw University of Technology and he offered to me the position vacated by Michał Walicki. Professor Zachwatowicz needed somebody to conduct preliminary research and supervise the preparation of documentation for the work planned in the 1930 and started by him on Cistercian architecture in Poland. This field ideally matched my intention to pursue the doctoral dissertation on architecture of the abbey in Sulejów.

During the 15 years of my work at the Institute of Polish Architecture I had the privilege of preparing together with Professor Zachwatowicz a paper on architecture of the earliest group of Cistercian buildings in Poland and delivering it at the international Congress of Art History which took place fifty years ago in Paris. Then I cooperated with a few book publications – including a large monograph on the cathedral in Gniezno which apart from Cistercian architecture was the main object of scientific interests of Professor Jan. One day in 1960 professor Zachwatowicz, more and more preoccupied with the preservation issues, gave me a hefty case with notes and hand drawings of Cistercian buildings and said somewhat melancholically: *You may find these useful; I am not going to write that book anyway*. At that time, however, I was fascinated by the art of early Middle Ages in Western Europe. For a quarter of a century I gave up the domestic issues and worked on Romanesque French and Veneto-Byzantine architecture sculpture encouraged by Andre Grabar, Ludwik Grodecki and Otto von Simson to whom I am very grateful.

It was only in the 1980s, especially after retirement, when a comeback was possible. And again I have to use the logic of coincidence to explain this. At the end of this year the book dreamed of by Jan Zachwatowicz is going to be published, originally scheduled to be published in the interwar period, about Cistercian architecture in Little Poland, prepared with equal participation of Ewa Łużyniecka, Robert Kunkel and myself. I have one more reflection to share with you today. After a long period when the community of architecture historians turned away from the issues regarding early Middle Ages we can see from the beginning of the third millennium an unusually growing interest in pre-Romanesque and Romanesque architecture. Thanks to the new generation of young competent researchers I am comfortably sure about further research on that subject and generation continuity in the research relay race.

Translated by Tadeusz Szałamacha

Cena zł 24,–
(w tym 0% VAT)

Zamówienia na prenumeratę przyjmują:
„Ruch” S.A. w Warszawie, Oddział Krajowej Dystrybucji Prasy,
ul. Jana Kazimierza 31/33, 01-248 Warszawa
oraz wszystkie placówki „Ruchu” na terenie całego kraju

Dystrybucja wydawnictw Politechniki Wrocławskiej:
księgarnia „Tech”, pl. Grunwaldzki 13, 50-377 Wrocław,
budynek D-1 PWr., tel. 320 29 35;

Oficyna Wydawnicza Politechniki Wrocławskiej
www.oficyna.pwr.wroc.pl, e-mail: oficwyd@pwr.wroc.pl

Prowadzimy sprzedaż wysyłkową