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# CZASOPISMO TECHNICZNE

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KAROLINA BIAŁOBŁOCKA\*

## HISTORIC COLOUR SCHEMES IN SILESIAN SECULAR INTERIORS

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### KOLORYSTYKA ŚWIECKICH WNĘTRZ NA ŚLĄSKU

#### Abstract

While searching for valuable wall paintings, examinations may also reveal the colour scheme of the whole interiors. Such discoveries deepen our knowledge about trends in historic design in the Lower Silesia region and are used in conservation for preserving monuments closer to their original state. Selected results from examinations conducted by conservators in secular public and residential buildings from the Middle Ages to the 20<sup>th</sup> century are presented in this article.

*Keywords: colour, secular interior, history, Silesia*

#### Streszczenie

W trakcie poszukiwań wartościowego malarstwa ściennego określone zostają do celów konserwacji także dyspozycje barwne dla całego wnętrza. W artykule zaprezentowano wyniki badań wykonanych przez konserwatorów dzieł sztuki we wnętrzach świeckich, zarówno publicznych, jak i mieszkalnych na terenie Dolnego Śląska. Wybrane przykłady pochodzą z różnych okresów stylistycznych od późnego Średniowiecza po połowę XX wieku.

*Słowa kluczowe: kolor, wnętrze w budynku świeckim, historia, Śląsk*

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## 1. Introduction

Trends in historic colour schemes may be traced by analysing various sources such as reports from investigations, colourful depictions of buildings, design drawings and written sources. Documents of examinations conducted by conservators in Silesian secular interiors from the Middle Ages to the mid 20<sup>th</sup> century have been analysed and, as a result, selected discoveries of the first chronological phase are presented in the article in chronological order<sup>1</sup>. On-site removal of paint layers to reveal the sequence of the applied decoration is the most common method described by the cited authors. Cross-sections and chemical analyses are seldom mentioned in documents. Non-invasive methods were not used. A few descriptions come from written sources.

Interiors are exposed to much more frequent changes than elevations and therefore, discoveries of original decorations are infrequent and usually partial. Additionally, the colour scheme of a whole space is often revealed while searching for valuable wall paintings. In this case, remaining items such as architectural details and sculptures might be the only traces of the colourful past of a whole interior.

Historic colour schemes in Silesian secular interiors have not been the subject of regular studies. The term *Farbigkeit der Architektur* in the lexicon *Reallexikon zur deutschen Kunstgeschichte* presents examples of original colour schemes in interiors from 800 to 1840 in German-speaking countries [8]. Scattered information is occasionally mentioned in publications on historic architecture and magazines dedicated to its preservation. M. Chorowska (1994) described tendencies in decorating medieval dwelling houses located around the marketplace in Wrocław [2]. M. Jagiełło (2003) mentioned hues used in the sgraffito technique in the Silesia region [6]. A. Zabłocka-Kos (2006) presented two colour schemes of Wrocław classical interiors, the Opera Hall and a non-existent ballroom in the former Old Exchange [13]. A. Gryglewska (2008) discussed original decoration of two Wrocław interiors, the Market Hall at 17 Piaskowa Street and the Faculty of Architecture at 53–55 Prus Street [4, 5]. J. Urbanik (2009) included a few descriptions of colour schemes of residential buildings in a publication on the 1929 housing exhibition in Wrocław [10]. Three case studies from Wrocław were discussed by the author at the AIC congress in Newcastle upon Tyne in 2013 [1].

## 2. Historic colour schemes

### 2.1. The medieval colour schemes

A room in Świdnica Town Hall, dating back to 1536, originally housed the treasury<sup>2</sup>. Traces of late Gothic polychrome made in the tempera technique were discovered on selected

<sup>1</sup> The presented information is part of PhD research on historic colour schemes in the Silesian architecture.

<sup>2</sup> E. Grabarczyk, *Dokumentacja prac badawczo-poszukiwawczych. Pomieszczenie dawnego skarbcza przy Sali Rajców – Muzeum Dawnego Kupiectwa, Świdnica, Rynek 37*, Wrocław 2000, typescript, Urząd miejski w Świdnicy.

architectural details during on-site examination. The entrance door and edges of the north and south walls and a vault were decorated with a red, twelve-centimetre-wide stripe in a hue close to vermillion. Round the entrance door, the red stripe was additionally embellished with the black decorative motifs and outlined with a brown ornamental border. The walls were painted green and the vault was blue. A conservator suggested the use of azurite on the vault, a blue pigment discolouring with the lapse of time to green. The rib crossing was adorned with grey and black stripes.

## 2.2. The Renaissance colour schemes

The half-timbered manor house located in Oporów, Wrocław was built in the second quarter of the 16<sup>th</sup> century and frugally decorated. On-site examination was conducted in selected interiors<sup>3</sup>. Traces of the original paint were revealed on the west wall and the ceiling in the hallway. The spaces filled with clay were covered with creamy mortar, whereas the timber beams and ceiling were painted a graphite shade. Since the timber used was rough-hewn the paint layer covering the timber structure was extended beyond the beams in order to create straight composition. Additionally, the layout was underlined with red lines (Ill. 1). Traces of a warm pink-yellow paint were discovered on the timber ceilings in two rooms on the ground floor, while the other ceilings were left uncoated and were probably waxed. Whitewash was applied to the walls in the remaining rooms on the ground floor. The hallway on the second floor was decorated in the same way as the downstairs, with the exception of the ceiling which was unpainted. The walls in the other rooms on the upper floor were coated with creamy mortar hiding the half-timbered structure, the timber ceilings were originally left uncoated.



Ill. 1. Oporów, Wrocław, a manor house, polychrome remains in the hallway-detail  
(photo by Cezary Wandrychowski)

<sup>3</sup> J. Burnita, C. Lasota, C. Wandrychowski, *Badania dworu we Wrocławiu-Oporowie, ul. Wiejska 17*, Wrocław 2002, typescript, MKZ Sygn. 475/03.

Colourful colour schemes were revealed on a few Renaissance architectural details in Wrocław<sup>4</sup> and Lubań<sup>5</sup>. The medieval house at 4 Kurzy Targ Street in Wrocław, the former apothecary, was refurbished in the Renaissance style in 1554. Multi-coloured colour schemes were traced on eight internal columns. Highly saturated hues like red, blue, green, yellow, cream and black, were juxtaposed in contrasting compositions. Gilding and imitation of marble were discovered on some shafts, bases and heads [1] (Ill. 2). Similarly, a two-coloured, contrasting yellow and blue scheme was discovered on the internal stone portal placed in the town hall in Lubań. Traces of yellow paint were revealed in two places on figural decoration, while blue paint was uncovered in the background and on the pilasters' head. The lips, eyes and nostrils were coated with red and black paints.



Ill. 2. Wrocław, 4 Kurzy Targ Street, the Renaissance colour schemes on internal columns after conservation-details (photo by the author)

<sup>4</sup> P. Wanat, *Dokumentacja konserwatorska. Badania stratygraficzne kamiennego detalu architektonicznego we wnętrzu kamienicy przy ul. Kurzy Targ 4 we Wrocławiu*, Wrocław 2011, typescript, MKZ Sygn. R/36/11.

<sup>5</sup> *Idem, Badania stratygraficzne na elewacjach oraz wybranym detalu architektonicznym wewnątrz w budynku ratusza w Lubaniu*, Wrocław 2010, typescript, private archive, courtesy of Piotr Wanat.

The oldest Renaissance decoration in Luboradz castle<sup>6</sup>, dating back to the 16<sup>th</sup> or 17<sup>th</sup> century, consisting of tiny triangles achieved by divisions of rectangles, resembles sgraffito. The ornamentation detected in the south wing was originally applied in various rooms in different juxtapositions: pink and white, black and white, grey and white and blue and white with yellow ochre suggesting shadow. The other type of Renaissance decoration was revealed in the west wing. Floral ornamentation decorated windows and niches. Decoration was painted dark red, green, brown, black and grey on the white background. The ceiling polychromes were kept dark red, emerald green and lighter shades of those colours.

Partial discoveries also took place in a manor house in Komorowice<sup>7</sup>. Renaissance decoration, dated from circa 1600, divided walls into three zones – a grey plinth topped with a dark red stripe, light yellow walls and a frieze. Ornamental fringes enclosed with black stripes were revealed round window and door embrasures, while orange-yellow ochre acanthus leaves decorated the surface below the windowsills. Red-brown hues enriched the floral decoration. Relicts of yellow polychrome were traced on stone window and door surrounds.

Partial Renaissance decoration was also revealed in a few representative rooms at 6 Rynek<sup>8</sup> in Wrocław. Traces of red polychrome and an ornamental frieze were uncovered on the south wall in a room located on the first floor, the room with a coffer ceiling. The frieze was placed beneath the ceiling and along former stairs (Ill. 3). According to a conservator, the composition of plaster painted red proves that its Renaissance in origin. The multi-coloured ceiling was coated with ultramarine, iron red, yellow ochre and chalk.



Ill. 3. Wrocław, 6 Rynek, relicts of the renaissance frieze after conservation-detail  
(photo by the author)

<sup>6</sup> T. Zarkowska, J. Stokłosa, T. Stopka, A. Kałużny, *Zamek w Luboradzu, dokumentacja stratygraficzno-opisowa ścian wewnętrznych i elewacji zamku wykonana w 1976 r.*, sale i pomieszczenia od nr 1 do 15, od nr 16 do 53, Sygn. R/94, R/94 a, R/94 b, typescript, WKZ Legnica.

<sup>7</sup> M. Delimat, *Badania stratygraficzne późnogotyckiego dworu obronnego rodu von Kaltenbrunn w Komorowicach*, Wrocław 2007, typescript, WKZ Wrocław, Sygn. 6636/08.

<sup>8</sup> G. Zielińska, *Wstępne prace badawcze i odkrywkowe na ścianach, na stropach w kamienicy przy ul. Rynek 6*, Wrocław 1982, typescript, MKZ Sygn. R/346.



A style of decorating in the room with acanthus ceiling was also described as Renaissance in origin. Illusionist polychrome imitating architectural decoration was discovered on the south and west walls. A red coating imitating brick with black and white stripes imitating mortar was two meters height from the floor level. Grey mortar was applied above and topped with a multi-coloured frieze. A copper pigment, iron black and chalk were discovered by chemical analyses.

### 2.3. The Baroque colour schemes

A representative room on the first floor at 6 Rynek in Wrocław was created during refurbishment in the early 18<sup>th</sup> century and ornamented in a new fashionable Baroque style. The room was richly decorated with two-coloured stucco pilasters with gilded bases and capitals and silvering ornamentation on plinths and embrasures. Two separate examinations of the room revealed two different styles of wall decoration and colour schemes. Traces of fabrics of Italian origin dating back to the late Renaissance were discovered during the first examination<sup>9</sup>. Remaining scraps suggested a raspberry red fabric with gilded ornamentation. The flat parts of the ceiling were probably painted pink and an ivory hue was applied to bulging stucco decoration. The second examination<sup>10</sup>, conducted thirty years later, revealed quite a different colour scheme and style of decorating from the Baroque refurbishment. Relicts of light blue paint close to a light Prussian blue were discovered on walls directly on the original mortar (Ill. 4). A similar blue hue was discovered on the ceiling [1].



Ill. 4. Wrocław, 6 Rynek, traces of bluish paint from the first chronological phase (photo by Wiesław Piechówka)

<sup>9</sup> *Eadem, Wstępne prace badawcze i odkrywkowe na ścianach, na stropach w kamienicy przy ul. Rynek 6, Wrocław 1982, typescript, MKZ Sygn. R/346.*

<sup>10</sup> *W. Piechówka, Dokumentacja konserwatorska prac związanych z konserwacją dekoracji: malowidła plafonowego, kolorowej scalili dekoracji sztukatorskiej i złoceń we wnętrzu Sali plafonowej w kamienicy Pod złotym słońcem w Rynku we Wrocławiu, typescript, private archive, courtesy of Wiesław Piechówka.*

Wall and ceiling paintings decorated many Silesian Baroque interiors. Examination of the 18<sup>th</sup> century palace in Pakoszów-Piechowice concentrated on wall paintings made using a lime technique<sup>11</sup>. Investigations were conducted in selected interiors in the west wing – a drawing room, a ballroom and a smaller drawing room decorated with Dutch ceramic tiles.

The original wall painting detected in the first drawing room probably dates back to 1725. Partial discoveries allowed for the estimation that the decoration was unsymmetrical and that the colours were applied in an irregular way. An oblique, criss-crossed, linear pattern was located on the ceiling and in the upper parts of the walls. Dark red, black and white hues were traced. The ceiling was probably coated with a warm grey shade. The discovered traces of items like arrows, yellow scales and possibly other signs of the zodiac were probably related to astrology. The revealed hues were described as pink, grey, grey-yellow ochre in the east-south corner and light grey and yellow ochre in the west part of the room.

Relicts of wall paintings were also uncovered in the ballroom. The walls were originally decorated with a painted plinth and cornice. Remains were discovered above the doors and in the window embrasures. Grey and green hues were enriched with yellow ochre, white, dark red and brown.

The other drawing room was tiled with pottery made in Delft in the 18<sup>th</sup> century. Square tiles were connected without joints. Various scenes from the Bible, genre scenes and landscapes in blue shades were glazed on the white background (III. 5).



III. 5. Pakoszów-Piechowice, left: a drawing room tiled with Dutch ceramic, right: remains of wall paintings in a former ballroom (photo by the author)

<sup>11</sup> K. Gwoźdź (under supervision of Grażyna Schulze-Glazik), *Dokumentacja prac badawczo-konserwatorskich. Pałac w Pakoszowie-Piechowicach, woj. dolnośląskie*, Wydział Konserwacji i Restauracji Dzieł Sztuki ASP w Krakowie, 2011, typescript, WKZ Jelenia Góra.

Frugal colour schemes were detected in the three Baroque interiors in Nysa<sup>12</sup>, Lubiąż<sup>13</sup> and Świdnica<sup>14</sup>. Examinations of an assembly hall in a former Jesuits school in Nysa revealed two colour schemes from the Baroque period. The first colour scheme dates back to the erection time of around 1677 and the other, to circa 1725. Originally, white lime paint close to NCS S 0 500-N was applied to all the surfaces. The blue background of the Jesuits' shield together with the black outlining of the angels' eyes were the only colourful accents in the assembly hall. The second chronological colour scheme from the beginning of 18<sup>th</sup> century was two-coloured, additionally enriched with a wall painting. The walls and ceiling were painted white, whereas oval areas on the ceiling and a part of the stucco decoration were painted pink.

A gatehouse in a convent in Lubiąż dates back to 1710. Examination revealed monochromatic colour schemes in a hallway and three other rooms. Light sienna was applied to the hallway walls, whereas the walls in the other rooms and all the ceilings were painted grey with lime and organic black.

A similar white-grey colour scheme dating back to the first half of the 18<sup>th</sup> century was revealed in a former apothecary in Świdnica market square. The walls of a representative room were painted light grey (nearly white), with lead white and organic black. The stucco decorated ceiling was differentiated with shades ranging from white to grey. The frames were the lightest features and the ornamental background was the darkest.

#### 2.4. The classical colour schemes

A representative drawing room from 1776–1781 of the palace in Samotwór<sup>15</sup> was originally decorated in cool hues: green, turquoise, grey and white. The walls and ceiling were painted turquoise with lighter shade on the ceiling. The column shafts and frieze were light turquoise and white, the architrave was light green, the stucco decoration and cornice were light grey and the tondi were coated with light green paint. Traces of light grey and bright red paint were discovered in the hall.

The palace in Żerków dates back to 1791. On-site examination<sup>16</sup> was conducted in a representative oval room, acting in the past as a ballroom, and in a study. Traces

<sup>12</sup> P. Wanat, *Dokumentacja konserwatorska. Badania stratygraficzne auli w budynku dawnego Kolegium Jezuickiego. Obecnie Liceum Ogólnokształcące „Carolinum” nr 1 w Nysie, ul. Sobieskiego 2*, Wrocław 2010, typescript, private archive, courtesy of Piotr Wanat.

<sup>13</sup> E. Grabarczyk, *Dokumentacja badań stratygraficznych. Barokowy budynek dawnej kancelarii w zespole zabudowań klasztornych pocysterskich w Lubiążu*, Wrocław 2011, typescript, WKZ Wrocław, Sygn. 716.

<sup>14</sup> Eadem, *Dokumentacja prac badawczych przy sklepieniu dawnej apteki w bloku śródrynkowym w Świdnicy*, Wrocław 1997, typescript, Urząd miejski, Świdnica, Sygn. BS 6.

<sup>15</sup> Eadem, *Program prac konserwatorskich. Detal architektoniczny na elewacjach pałacu i bramy do zabytkowego założenia w Samotworze, gmina Kąty Wrocławskie. Zabytkowy wystrój wnętrz pałacu*, typescript, WKZ Wrocław, Sygn. 680.

<sup>16</sup> W. Piechówka, *Dokumentacja badań stratygraficznych na elewacji i w dwóch pomieszczeniach pałacu klasycystycznego w Żerkowie, powiat Brzeg Dolny*, typescript, private archive, courtesy of Wiesław Piechówka.

of original lime-sand plaster and lime paint were discovered in both rooms. It was estimated that the oval room was either coated with both cool and warm whitened hues or with off-white hues. Warm colours were juxtaposed with cool colours, for example, warm pink, cool white and warm bright pale yellow ochre.

The colour schemes of two assembly halls popular among the wealthy middle class in 19<sup>th</sup> century Wrocław are known from written sources. The audience room in the opera house was kept as red, white and gold. A red hue was applied to wall decorations, draperies, balustrades and upholstery, whereas decorations were enriched with white shades and gilding [13].

The former exchange building at Solny Square was designed in 1821. The no longer existent assembly room was described in a travel diary from 1825. A white hue was predominant in a two-storey room decorated with twenty eight columns. The draperies hanging among the columns were light green and additionally interwoven with golden strings. Gilding was applied to the cornice and the ornamentation below the balconies [13].

## 2.5. The colour schemes of the Historicism

Examinations conducted in the representative room of the main railway station in Wrocław revealed partial findings from a few chronological phases [12]. The so called ‘Sala Secesyjna’, designed in 1860<sup>17</sup>, was located above the main entrance on the first floor. The number of chronological phases was established on between three to eleven since most of the original substance was removed during various refurbishments. According to written sources, the walls were originally covered with wallpapers divided by vertical laths. Three-foot-high, timber wall panelling protected the walls against damage. The first phase plaster (painted blue) was uncovered on walls only in the annex and a multi-coloured colour scheme was discovered on the arcade columns between the main room and the annex. Shafts were painted blue, similar to the hue applied to the walls. The bases and leaves were gilded and heads were painted blue and red. Red, blue and gilding also decorated arcade profiles and the annex ceiling. The discovered hues were described in comparison to the NCS colour chart in the following way: walls – NCS S 3060-R80B; arcade and beam profiles – NCS S 5030-B90G, S2570-R; columns in the annex – NCS S 3010-B; floral decoration on arcade arches – NCS S 4040-Y 60R; leaves – NCS S 35 60 Y 70R.

Richly decorated multi-coloured colour schemes were discovered in a few representative hallways of tenement houses from the 19<sup>th</sup> century and the beginning of the 20<sup>th</sup> century. The dwelling house at 16 Wit Stwosz Street in Wrocław was rebuilt in a neo-Renaissance style in 1810<sup>18</sup>. The entrance area originally had a frugal colour scheme. After an on-site examination, two samples were chosen from ninety-one on-site removals and analysed under the microscope. The discovered hues were compared to the CAPAROL 3D+ colour chart. It was estimated that mortar and sand stone were painted identically. Both the hallway and

<sup>17</sup> P. Wanat, *Dokumentacja konserwatorska, badania stratygraficzne oraz program prac konserwatorskich tynków ścian oraz elementów wystroju dawnej sali secesyjnej (B02.010) ryzalitu centralnego, obszar B, budynku Dworca Głównego we Wrocławiu*, Wrocław 2011, typescript, private archive, courtesy of Piotr Wanat.

<sup>18</sup> A. Witkowska, *Badania stratygraficzne w sieni i głównej klatce schodowej kamienicy, Wrocław, ul. Wita Stwosza 16*, Wrocław 2010, typescript, MKZ Sygn. 362/10.

staircase walls were plastered with lime, whitewashed and coated with a sandy hue similar to sienna 55, palazzo 180 and palazzo 210. The ceilings were painted a light creamy-grey similar to sienna 30. The window and door frames on the staircase were painted beige (palazzo 250, palazzo 315, marill 70) and a light brown imitation of oak was applied on top and varnished. The stairs were dark brown similar to papaya 5 and magma 5. Heads and bases of the balusters made of copper were left exposed as natural material and those made of timber, located above the third floor, were gilded with a yellow foil. The balusters were coated with a black hue. The timber columns located between windows in the hallway were painted a sandy colour (onyx 110, sienna 105). A few decorative details were introduced in the next chronological phases.

The hallway and staircase in a house at 66 Podwale Street<sup>19</sup>, dating back to the mid 50s, were originally painted red, green and yellow ochre. The floor and landings were grey, green and red, and a grey hue was applied to plinths. Handrails and timber cubes under the bells were painted black. Gilding was discovered on one balustrade ball.

The extension of the former villa at 72 Piłsudski Street in Wrocław<sup>20</sup> was built in 1873. Pinkish stripes were applied to the walls in the hallway. Pilasters were painted pink, grey and red. The bordure was coated with dark red, dark brown, grey-blue and light green paints. The tondi were filled with circles starting in the centre with brown, white, brown, light grey, green and maroon. Other details were kept in grey-blue shades. It was only possible to trace relicts of green, creamy and bluish grey paints on the staircase. The timber parts of the stairs were partly painted brown, partly left unpainted and varnished.

The dwelling house at 15 Waryński Street in Kamienna Góra dates back to 1885<sup>21</sup>. The representative entrance area consisted of two, originally multi-coloured, halls. The walls in the smaller hall were painted white, yellow ochre and brown in a style imitating marble. The space between the doors was divided and filled with a green marble imitation on a black background. Pilasters were painted grey and gilded. The ceiling was kept in warm grey shades and surrounded by a brown ornament and a grey border with gilding. An architrave and cornice were grey, whereas a dark red hue imitating marble was applied to a frieze. The other hall was painted grey and black in the lower part. A plinth, column shafts and frieze were decorated with black, green and red marble imitation respectively. An architrave and cornice were painted dark grey. The dome was kept with blue, green and yellow ochre hues.

The former Schultheiss brewery complex at 204–210 Jedność Narodowa in Wrocław was erected between 1884 and 1911<sup>22</sup>. Four remaining buildings include two villa buildings

<sup>19</sup> Eadem, *Badania stratygraficzne elewacji, sieni i klatki schodowej kamienicy. Program prac konserwatorskich detali architektonicznych, Wrocław, ul. Podwale 66, Wrocław 2009*, typescript, MKZ Sygn. 448/09.

<sup>20</sup> Eadem, *Badania kolorystyki fragmentów wystroju wnętrza i piętra oficyny kamienicy, Wrocław, ul. Piłsudskiego 72 a, Wrocław 2000*, typescript, MKZ Sygn. 69/2000.

<sup>21</sup> A. Hermanowicz-Hajto, *Dokumentacja konserwatorska*, typescript, WKZ JG Sygn. A/R-1679.

<sup>22</sup> A. Witkowska, *Dokumentacja konserwatorska. Budynek „H” dawnego browaru przy ul. Jedności Narodowej 204/200 we Wrocławiu*, Wrocław 2009; eadem, *Dokumentacja konserwatorska. Budynek „I” dawnego browaru przy ul. Jedności Narodowej 204/220 we Wrocławiu*, Tom 1, Wrocław 2008, typescript, private archive, courtesy of Agnieszka Witkowska.

dating back to 1894, the chimney and a warehouse dating back to 1897. Examinations were conducted in selected rooms of the villa buildings originally housing administration offices. Interiors of the brewery office were coated with bright, pastel-coloured, yellow shades. Stucco decoration was gilded. The hallway was decorated with stripes painted black, olive and brown. Internal window frames were painted light grey and ivory. The main hallway in the other building was painted green and yellow ochre and decorated with a golden stripe. A maroon stripe enriched with grey-blue floral and linear ornamentation divided the walls into smaller sections. The red and yellow masonry walls in the corridor were partially uncoated and partially painted ochre (dado) and cream (above the dado). An olive and cream hues were applied to the staircase walls. The stairs and the balustrade were also painted a similar olive-green hue and enriched with gilding and silvering.

The office rooms located downstairs had frugal cream decoration but the rooms on the first floor were covered with wallpapers in green, creamy-yellow and cream hues with gilding. Similar green and yellow shades were applied to the ceilings on the first floor. Imitation of timber and geometrical floral ornamentation were discovered on ceilings in some rooms. Brown and yellow shades enriched with red and green dominated.

The audience hall in a theatre from 1896 in the spa town Szczawno-Zdrój was examined twice on-site<sup>23</sup>. Differentiated shades of green and gilding were detected during both examinations. Additionally, warm grey and alabaster white were uncovered on selected items during the other examination. The walls had darker hues than the ornamentation. Paints were probably mixed with black and complementary colours. The discovered green shades were described as dark bottle green similar to NCS S 4010-G30Y on walls and ceiling, emerald green as NCS S3030-G20Y in the background of details and light green as NCS S 1010-G60Y on ornaments.

## 2.6. The colour schemes form Art-Nouveau to the Modern Movement

Examinations conducted in a tenement house, dating back to 1903–1904, at 5 Chemiczna Street<sup>24</sup> in Wrocław revealed rich floral ornamentation on walls and ceilings (Ill. 6). The walls in the hallway and on the staircase were painted green. A decorative, flat imitation of a dado rail, consisting of a few parallel narrow green stripes, was painted 120–150 cm above the floor. The walls on the fourth floor were painted beige and decorated with a black stripe beneath the ceiling. The plinth was dark grey and the stairs and handrails were painted brown in different shades. The internal side of the entrance door was also brown, whereas grey-green was applied to internal window frames.

<sup>23</sup> L. Stanisław, *Badania projektu kolorystyki Sali teatru zdrojowego w Szczawnie-Zdroju*, Wrocław 1988, NID, sygn. PBA 179; D. Wandrychowska, *Teatr Zdrojowy im. Henryka Wieniawskiego. Widownia. Badania stratygraficzne. Ramowy program prac konserwatorskich*, Wrocław 2009, typescript, WKZ Wałbrzych, Sygn. 6699.

<sup>24</sup> A. Witkowska, *Badania stratygraficzne elewacji oraz elementów wystroju architektonicznego sieni i głównej klatki schodowej kamienicy*, Wrocław, ul. Chemiczna 5, Wrocław 2010, typescript, MKZ Sygn. 41/11.



III. 6. Wrocław, 5 Chemiczna Street, the tenement house hallway original decoration  
(photo by the author)

The two buildings at present housing the Faculty of Architecture at 53/55 Prus Street in Wrocław were erected in 1901–1904<sup>25</sup>. The original colour schemes were similar in both of these buildings. The floors, plinths, corners, stairs and ground floor columns were grey. Grey-green or olive dominated on the dado in the corridors. The remains of a decorative floral frieze in green and red hues placed on the top of the dado were discovered only in one place. Internal window frames were painted with a warm red-brown hue. The remaining columns, balustrades and washbasins were made of red-brown sand stone. Red stripes decorated the floors and a reddish aggregate was added to the green-grey terrazzo. The partially remaining metal laths in movement joints were additional shining accents. The walls in the assembly hall were partly painted purple and partly covered with timber panelling in a red-brown hue. Decorative ornamentation visible on archive pictures did not survive [5].

Colourful colour schemes were discovered during examinations conducted in a few modernist buildings in Wrocław: Four Dome Pavilion on Wystawowa Street<sup>26</sup>; the south

<sup>25</sup> *Eadem*, *Rozpoznanie konserwatorskie wybranych elementów wystroju wnętrza gmachu E-1 i E-5 Wydziału Architektury Politechniki Wrocławskiej*. Wrocław, ul. Prusa 53/55, typescript, Wrocław 2010, investor's archive.

<sup>26</sup> R. Wójtowicz, *Rozpoznanie konserwatorskie oraz określenie pierwotnej kolorystyki elementów architektury Pawilonu Czterech Kopuł we Wrocławiu*, Wrocław 2008, typescript, MKZ Wrocław, Sygn. A 181/11.

water power station at 46 Nowy Świat Street<sup>27</sup>; in the former C&A department store at 10–11 Oławska Street<sup>28</sup>.

The Four Dome Pavilion was erected in 1912–1913 as an exhibition pavilion and the original decoration of the whole interior was probably related to the planned display. Different colour schemes were revealed during on-site examination. The hallway and the dome room in the entrance area were painted grey with a slightly lighter shade on the ceilings. A black hue was discovered on a plinth and on the pilasters' edges in the hallway. Niches were probably decorated with colourful ornaments as the following colours were revealed: sienna; purple; pale umber. Wallpapers are believed to have decorated the rooms in the south wing, yet they did not survive.

The walls in the west wing were painted uniform grey and the pilasters, skylights and beams' edges were outlined with black stripes. The ten centimetre wide stripe located below the beams was probably originally covered with wallpaper. The dome room located in the west wing was painted dark grey, nearly black, with lighter grey stripes. The big windows of the dome were outlined with a black hue. Iron crosses and inscriptions were additional colour accents. Traces of light blue, grey, brown and black hues were discovered.

The room in the west-north corner was painted blue-grey and decorated with black frames criss-crossing beneath the beams. The rooms located in the north wing were painted blue-grey with a lighter shade on the ceilings, additionally, they were decorated with a linear design. The walls and the floor of the dome room in the north part were dark grey, nearly black. The bases of columns were also dark grey, whereas shafts and capitals were painted light yellow ochre. The dome, frieze and columns between the windows were decorated with frugal meanders and frames. The patterns were painted black on the yellow background. The adjacent garden room was warm red. The linear frames on the pilasters were black and the columns and architrave – warm grey.

The rooms located in the east wing were also kept with grey shades. Similarly, the west wing pillars, skylights and beams were outlined with black stripes. Additionally, a ten centimetre wide stripe made of a wallpaper beneath the beams is believed to have decorated the rooms. The east dome room was also painted grey. Cool malachite green and dark grey hues were discovered in the architrave background. The plinth was black and the dome and columns between the windows were painted a hue similar to golden ochre [1].

The interior of a power station erected in 1921–1924 was originally coated with different green shades. Examinations conducted on-site revealed emerald green on the north wall, light green on the west wall, grey-green on concrete pillars and dark green on a portal made of granite.

Relicts of original decoration were revealed by on-site investigations in a former C&A department store dating back to 1930–1931. Both the reinforcement structure and

<sup>27</sup> E. Grabarczyk, *Program prac konserwatorskich przy elewacjach budynków oraz ścianach wnętrza hali turbin elektrowni południowej we Wrocławiu, ul. Nowy Świat 46*, typescript, private archive, courtesy of Elżbieta Grabarczyk.

<sup>28</sup> C. Wandrychowski, *Budynek handlowo-usługowo-biurowy, ul. Oławska 10-11, Wrocław. Badania stratygraficzne wnętrz*, typescript, private archive, courtesy of Cezary Wandrychowski.

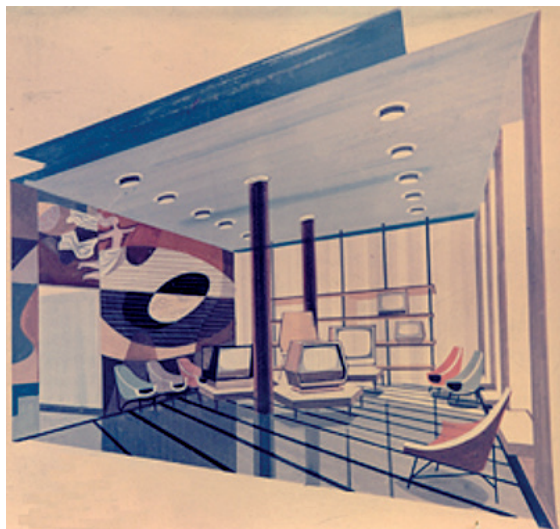


the masonry walls were originally plastered and either painted or covered with wallpapers. A plinth on the staircase was made of travertine and the walls were painted bright creamy-yellow. The remains of decorative friezes from the first chronological phase were discovered on the third floor on beams and ceilings. The uncovered thirty centimetre wide friezes decorating beams consisted of stripes in contrasting hues. The first frieze was painted blue and dark red and the other frieze was grey-blue and black. The six centimetre wide stripes detected on the ceilings were originally part of the friezes that were also decorating the girders. Light red and dark brown hues were revealed in two places. Traces of wallpapers with a geometrical floral pattern were discovered after removing partitions from later refurbishments. A black motif was placed on the bright background.

A few original colour schemes of buildings erected for a housing exhibition in Wrocław in 1929 are known from written descriptions. Examination was conducted only in a building designed by Hans Scharoun. Highly saturated hues juxtaposed in contrasting compositions were often applied to walls, ceilings and fitted furnishing. Grey, black and white interiors contrasted with red shelves and a yellow table in a house designed by Henrich Lauterbach. Red and black were juxtaposed in houses designed by Moritz Hadda and Adolf Rading, too. Blue and red hues were revealed in the hallway and the dining room of the residential building designed by Hans Scharoun [10].

### 2.7. The colour schemes in the 50s of the 20<sup>th</sup> century

The colour schemes of the architecture erected in Wrocław after 1945 have so far not been examined by conservators. However, quickly changing tendencies might be traced in publications on interior design. A few colour schemes from the 50s are mentioned briefly in the article to outline the topic and to encourage further research.



III. 7. Wrocław, design for a shop at former Młodzieżowy Square in Wrocław city centre (private archive, courtesy of Jerzy Tarnawski)

The three described public interiors from the late 50s were kept in sober shades. Various pieces of art and furnishing often provided colourful accents (Ill. 7). Intense yellow and red hues of the bookshelves contrasted with off-white walls of a bookshop on Świdnicka Street. A colourful mosaic was designed on one wall of a florist on Kościuszko Square to break the dominance of the plants' greenery, there were also grey-purple walls and a terrazzo grey floor. Similarly, painted fabrics and ceramic sculptures enriched a frugally designed café on Podwale Street [12].

### 3. Conclusions

Interiors have always been a subject of constant and comprehensive change as investors refurbished their premises in accordance with temporary fashions and their own tastes in relation to their social status and financial possibilities. Painted surfaces were enriched with, or even dominated by, colourful wall and ceiling paintings, frescos, mosaics, etc. Available pigments and techniques used influenced the range of the achieved hues.

The presentation of results from the examinations in chronological order aimed to render tendencies in historic colour schemes in the Silesia region from the Middle Ages to the mid 20<sup>th</sup> century. However, limited discoveries allowed only for the presentation of selected examples of colour schemes from different historic styles.

Examinations often bring limited results due to the presence of only a small amount of the original substance. At the same time, the presented results must be considered in relation to the applied methods and the scope of the conducted investigations. Additional pigment analyses and the use of non-invasive techniques may bring more exact information in the future.

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### References

- [1] Białobłocka K., *Colour traditions in Lower Silesia Architecture*, AIC Colour 2013, 12<sup>th</sup> Congress of the International Colour Association, 8–12 July 2013, Newcastle upon Tyne, UK, Conference Proceedings, Vol. I, 235-238.
- [2] Chorowska M., *Średniowieczna kamienica mieszczańska we Wrocławiu*, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 1994.
- [3] Eysmont R., Ilkosz J., Tomaszewicz A., Urbanik J. (eds.), *Leksykon architektury Wrocławia*, Via Nova, Wrocław 2011.
- [4] Gryglewska A., *Wrocławskie hale targowe 1908–2008*, Muzeum Architektury we Wrocławiu, Wrocław 2008.
- [5] Gryglewska A., *Department of Architecture of Wrocław University of Technology in the former seat of Construction Crafts School and Higher School of Machine Building*, *Architectus*, 1 (27), 2010, 31-37.
- [6] Jagiełło-Kolaczyk M., *Sgraffita na Śląsku 1540–1650*, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 2003.

- [7] Jankowski A., *Średniowieczne malarstwo ścienne na Śląsku u progu reformacji. Ikonografia – funkcje – styl*, Wydawnictwo Uniwersytetu Kazimierza Wielkiego, Bydgoszcz 2005.
- [8] Kobler F., Koller M., *Farbigkeit der Architektur*, [in:] *Reallexikon zur deutschen Kunstgeschichte*, Stuttgart 1981, 274-428.
- [9] Pilch J., *Leksykon zabytków architektury Dolnego Śląska*, Arkady, Warszawa 2011.
- [10] Urbanik J., *1929 WUWA 2009 Wrocławska wystawa Werkbundu*, Muzeum Architektury we Wrocławiu, Wrocław 2009.
- [11] Wanat P., Ziental K., *Między konserwacją a kreacją. Przebudowa Dworca Głównego we Wrocławiu 2010–2012*, *Renowacje i Zabytki*, IV, 2012, 158-164.
- [12] Wińcze W., *Wrocławskie wnętrza*, *Architektura*, 9/143, 1959.
- [13] Zabłocka-Kos A., *Zrozumieć miasto. Centrum Wrocławia na drodze ku nowoczesnemu city 1807–1858*, Via Nova, Wrocław 2006.

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“URBAN LABYRINTHS”: THE IDENTITY OF CITIES  
AND THE CREATION OF THEIR IMAGES AS TOURIST  
ATTRACTIONS. THE CASE OF THE BACKYARDS  
AND LANES OF LUBLIN, WROCLAW AND KATOWICE

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„LABIRYNTY MIEJSKIE”: TOŻSAMOŚĆ MIASTA  
A KSZTAŁTOWANIE JEGO WIZERUNKU JAKO ATRAKCJI  
TURYSTYCZNEJ NA PRZYKŁADZIE PODWÓRZY  
I ZAUŁKÓW LUBLINA, WROCŁAWIA I KATOWIC

Abstract

Tourists are tired of mass tourism and are therefore seeking places and experiences they could call genuine and different. In city tourism, focus is being increasingly shifted towards direct and authentic experience of urban space through spontaneous contact with the space itself and the inhabitants who create it. The authors, on the basis of three Polish cities being known as tourist destinations, analyzes the role of backyards and lanes in building up the identity of a city and the way their image as a tourist attraction is created.

*Keywords: backyards, lanes, identity of a city, image of a city, tourist attraction*

Streszczenie

Zmęczeni turystyką masową turyści poszukują odmienności i autentyzmu miejsc oraz doświadczeń z nimi związanych. W turystyce miejskiej coraz więcej uwagi zwraca się na bezpośredniość i prawdziwość doświadczenia przestrzeni miejskiej poprzez spontaniczny kontakt zarówno z nią samą, jak i jej wytwórcami – mieszkańcami miasta. Autorzy artykułu na przykładzie trzech turystycznych miast Polski analizują rolę podwórze i zaułków w budowaniu tożsamości miasta, konfrontując jednocześnie wykorzystanie ich potencjału z kształtowaniem turystycznego wizerunku miasta.

*Słowa kluczowe: podwórka, zaułki, tożsamość miasta, wizerunek miasta, atrakcja turystyczna*

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## 1. Introduction

In the twenty-first-century world, where not much is left to discover, tourism still searches for authenticity and freshness, offering more distant and wilder destinations which are apparently untouched by civilization. Considered more demanding, cultural tourism is not limited to searching out new spaces, rather, it strives to fathom out ‘the truth about places’, and offer it to tourists, revealing ‘hidden’ stories, meanings and symbols in the places that they already know. The search for niches that have potential for exploration seems to be particularly important in cities, which traditionally count as key tourist attractions/products wherever there are aspirations to make tourism something more than just trivial entertainment.

Tourist brochures are full of slogans promising inspirational, unforgettable experiences through contact with urban space or participation in events emphasizing the cultural uniqueness or identity of cities. This leads to questions about the components of urban space identity, and to what extent the images of cities as tourist attractions promoted through various tourist media channels are consistent with or reflect their *genius loci*. In the example of three large Polish cities, the authors try to answer to what extent the identity of a city comes from instantly recognizable public places (including tourist attractions) and to what extent it is formed by private or semi-private places where residents live their daily lives.

## 2. City tourism and the identity of a city

Broadly speaking, the notion of *city tourism*, is applied to all kinds of tourist activity taking place in a city and incorporates both leisure/cultural and business/event tourism. However, as Kowalczyk points out [6, p. 156-157], there is a special kind of city tourism – travels in search of qualities related to urban space identity, ‘a hidden dimension’ of a city, understood symbolically. Such a travels reflect its specificity and determine its distinctive features (though in fact it is difficult to define these qualities precisely or even give them a physical shape). From this perspective, even well-known cities which are top brands on the tourist market become areas of tourist exploration and, ultimately, of assimilation. The notion of a *tourist exploration area in a city* is difficult to define for several reasons. With interests varying from individual to individual, each tourist will have a different idea of what the *new* and the *unknown* are, which makes these notions multidimensional in terms of space and meaning. They are also heterogeneous; the *new* may be ‘a rare gem’ or ‘an unknown face of the *old*’. Identifying the tourist exploration area as historical space (e.g. conservation areas, see [31]) seems too narrow and far from the heart of the matter.

A *tourist exploration area* in the context of searching for the authenticity and identity of a city seems to be even more difficult to define. What is it that creates the identity of a city? Is it material objects or is it something that we often refer to as the ‘atmosphere’ of a city, so elusive and intangible yet perceptible to senses? In other words, is it space or people? Szymiski (2008) writes that ‘every city that has seen growth of more

than one generation has its own special places – areas that determine its original character, which are also unique in terms of the forms that define them...’ [26]. He does not fail to observe that whether these areas will emerge or not depends on a number of factors. Their collective, cultural significance and their role in building up the identity of a city are determined by history, the prestige of buildings and the architect’s or planner’s conception as well as important events for local and individual history which the residents wanted to preserve in urban space as a token of experiences they shared. As Lalli (1988) points out, those geographical, architectonic or cultural elements, to which urban communities subjectively attribute greater significance, may become symbols of a unique spirit of a city, which no other city has [8]. Thus, we can say that physically, the identity of a city may be formed by both objects and places and their specific features, which may exist alone or in combinations. It also seems that in this context, the identity of a city may reflect both the specific cultural landscape of a city (the real, physical landscape which is associated, for example, with a panorama or a certain region of the city) and the symbolic, which cannot be referred to any particular place, but reflects a specific combination of architectural space features (thinking of a city, one may associate it with a certain architectural style or detail or solutions that were commonly used in building structures).

### 3. Role of backyards and lanes in building up the identity of a city

‘Architecture is not limited to purely technical aspects, but there is much more to it. It represents aspirations and values of man, and in this sense it becomes a legible cultural text’ [30, p. 10]. Just as the body is the basic point of reference allowing men to determine their identity, so are planning and architecture such reference points for a city. Architecture is largely responsible for the formation of the collective memory of communities, and indirectly affects everyone who comes into contact with it, be it short or long-lasting. *Architecture parlante*<sup>1</sup> – architecture tells stories of places, communities and people, and becomes a medium which goes beyond trivial linguistics, language barriers or purely aesthetic impressions.

The unique spirit of the city is not born from public buildings alone (whether they be grand or less impressive). The character of the city depends on what happens on the surface, in the open, elegant public spaces and underneath, including backyards<sup>2</sup>.

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<sup>1</sup> Here, architecture is not just a general term to describe the designation and functions of buildings, it is also understood broadly and becomes a medium which has its own story to tell through shapes, forms and architectural details. Among others, Barbara Bossak-Herbst seems to start from this assumption in her *Antropolis* [3].

<sup>2</sup> It is the ‘anomalies’ that create the specific character of the so-called ‘invisible city’ [7, p. 11]. According to Krajewski, the anomalies are those elements that are ignored by authorities and dominant big-city culture, often considered provincial or even embarrassing, trivial and inappropriate. In other words, it can be anything that emerges (or happens to emerge) in urban space as a result of the residents’ daily routines.

Backyards are immensely interesting as they seem to exist in both public (in cities, they are open and usually available to everyone<sup>3</sup>) and private or semi-private space (to some extent the residents lead their private lives under the very eyes of their neighbours: children play there, the elderly rest on benches; in the past, the backyards were places where laundry was hung and cars were repaired, etc.). Even though backyards have been downgraded to playgrounds (now even this is becoming rare), car parks or dog-walking areas (sometimes they are areas of poverty or pathology), it is hard to negate the significant social function that, until recently, they typically provided. They provided the stimulus for the establishment of neighbourhood structures and tightened bonds between their members. Backyards are an open area where everyone can come (though it has boundaries, i.e. surrounding tenements). At the same time they are a microcosm, a precisely codified, multi-dimensional space, full of symbols and meanings. The meaning of some may be obvious: religious symbols may express the residents' commitment to religion, grass, trees and hedges kept in neat order can be a message saying that those who live there feel highly responsible for the shared space. Other signs can be read by but a chosen few, such as graffiti or those objects that apparently convey no meaning but there are individual or collective memories connected with them. Everyday life anthropologist Roch Sulima, as Niezgodna (2005) writes in her paper, says "Backyard history reflects social transformations. The backyard establishes a diagnosis, but it also serves as a model of behaviour to be followed" [13].

The most popular definition of the Polish word *zaulek* (English: *lane* or *blind alley*) is a 'short, narrow street' or a 'place which is hidden or difficult to reach' [21]. Lanes are often remainders of old, usually medieval, urban systems. Closely packed buildings resulted in the formation of a great number of lanes, particularly near walls or other fortifications surrounding the cities. In the past, they were home to craftsmen and the poor. They were often breeding grounds for diseases, lacking basic sanitary facilities and were dangerous<sup>4</sup>. Yet their status has changed over the centuries, and today many of them are considered 'magical' places, where 'time has cast its spell'. The lanes may have put off dwellers and strangers in times of old because of their narrow and claustrophobic nature, but today, what once was weakness in many cases has turned to strength as they offer quietness, a refuge from noisy main streets and a close contact with the living organism of the city. Lanes and backyards form urban labyrinths are viewed as intriguing and illuminating, even if they pose a slight risk of getting lost.

If one is to assume that lanes and backyards emphasize the specific atmosphere of the city, and they have their own intimate stories to tell, which are complementary to the formal history recorded in dates and reflected in the cultural landscape of public space of cities, then the question arises here on the value of these lanes and backyards as tourist assets. To what extent are they capable of becoming a medium for communicating knowledge about the nature of a city, and who will find them worthy of interest if they were indeed to become one? Paradoxically, tourists may not understand or even notice signs and

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<sup>3</sup> The authors refer to traditional backyards, though obviously there are also gated backyards (temporarily or permanently), e.g. in gated housing estates.

<sup>4</sup> In colloquial Polish, the word is often preceded by adjectives carrying negative connotations such as 'ciemny' (literally: dark) or 'ślepy' (literally: blind), etc.

symbols in the backyard space that are perfectly comprehensible and familiar to residents. The literature on tourism has frequently addressed the issue of authenticity of tourist attractions but rarely in the context of urban space components described above<sup>5</sup>.

#### 4. Tourist images of Wrocław, Lublin and Katowice and the identity of cities

Marketing activities taken to promote large tourist destinations create the image of a place where culture and historic sites prevail. This image is predominantly built up around stately churches, secular buildings and lively city centres full of students, tourists and, less often, residents. To a certain extent, the space for tourists has been reduced to a façade – a tourist on a well-beaten track has no chance to experience a more intimate picture of a city, as this can only be seen if one decides to go on a trip through a labyrinth of hidden passages, narrow lanes and backyards that can be found ‘off the beaten track’. They keep records of the past that are more human, more personalized (even if it has no name) than the version contained in stiff forms of grand public buildings.

##### Lublin

Available tourist brochures refer to Lublin as ‘the city of inspiration’ [27]. ‘A long and rich history’, ‘a location en route from Europe to Asia and the Far East’, ‘history of the city’ that secured a safe and prosperous environment for nations and religions, are considered as tourist assets of Lublin. Notable landmarks include: the Old Town; the Crown Tribunal; the Dominican Basilica in Lublin; the Chapel of the Holy Trinity in the Castle; the Chachmei Yeshiva; the Open Air Village Museum in Lublin. According to the description in the tourist brochures, the Old Town of Lublin is most noteworthy for its ‘spatial structure dating back to medieval times and richly-ornamented, old houses’. It takes readers a while to find the following sentence: ‘this enchanted place attracts through the magic of backyards and hidden lanes’ (and it is contained in the ‘entertainment’ section). Yet it is the intimacy of the tiny Old Town, where it is hard to tell where public space ends and private space begins that seems to determine the specific character of the place itself and a majority of other buildings in Lublin. The tourist image of Lublin is a facade that allows no insight into the often squalid yet so authentic backyards and the labyrinths of narrow passages, gates and lanes, and even though it does not seem to be artificial, it is certainly incomplete.

The fact that the houses of the Old Lublin were clustered closely together (or built in such a way as to ensure efficient use of space) was due to the location of the earliest town, which sat compactly on a headland between the Bystrzyca and Czechówka

<sup>5</sup> In 2007, a survey on tenement backyards on Piotrkowska Street in Łódź was carried out to determine their value as tourist assets and their potential for creating a new, authentic and unconventional tourist product. The respondents (a group of residents and city guides from Łódź) felt that the backyards reflect the specific nature of the city and, squalid as they are, they still have the potential to enrapture visitors with an abundance of details, architecture and planning. They may become a tourist attraction (though the distribution of opinions was ambiguous), but still they require upgrading and adaptation for tourism [14]. Unfortunately, the results of the survey have not been compared with the tourists’ opinions.



Rivers. The town grew on a very small area (6 ha) and had an irregular form imposed by the topography and communications routes [4]. Space was at a premium, as a result the streets were narrow and ran irregularly, surrounding distinct and diversified urban blocks. Gawdzik (1954) emphasizes the relationship between the natural landscape and picturesque buildings of the city within its medieval limits, where in his words “the streets, squares and empty spaces intertwine and merge” [4]. Over the centuries, the city area increased, and many new city buildings were built (houses being erected close to each other, particularly in the Renaissance). The spatial development of the city was halted at the end of the 18<sup>th</sup> century, which was connected with the general political situation in the country, but then decentralized settlements began to grow under the jurisdiction of secular and ecclesiastic lords. Town planning control in the first half of the 19<sup>th</sup> century did not affect the intimate atmosphere created by most buildings in the Old Town and its surroundings. In the second half of the 19<sup>th</sup> century, Lublin developed in a dispersed, haphazard fashion. The disastrous 20<sup>th</sup> century with atrocities of World War II brought the demolition (completely or partially) of entire districts (Podzamcze, Wieniawa). These districts are conspicuous by their absence as the space they used to occupy has still not been properly developed.

The Old Town backyards share specific features such as wooden galleries and stairs attached to annex walls. Their balustrades usually are delicately carved. In summer, washing pegged out on lines and colourful flowerbeds are typical elements of landscape interiors.



III. 1. Characteristic architecture of interblock spaces in the Old Town of Lublin – wooden galleries of annexes. Source: D. Chylińska (2012)

These features were part of the city landscape in the past, and they are also present today (Ill. 1). The role of backyards in understanding the *genius loci* of the city is even more important, because people still live in Śródmieście [City Centre] and in the Old Town. Even with students, tourists and also residents, seeking for opportunities to socialize, somewhere in the back, the residents of this part of the city live their daily lives. There is an authentic experience of space intimacy; because of narrow lanes (Ill. 2), the labyrinths of passages and backyards of the Old Town and the old houses of Śródmieście, the tourist has it all ‘within arm’s reach’.



Ill. 2. Lane in the Old Town of Lublin (Ku Farze). Source: D. Chylińska (2012)

Since 2007, the city authorities have been implementing the *Lublin Brand Project* step by step in accordance with the *Promotional Strategy for the City of Lublin*. The authors of the strategy consider the ‘rich historical and cultural heritage of the city in its intimate and thereby unique and inspiring form’ as ‘one of the key aspects of history of the brand that is important for its identity today’ [20]. It can be said that the statement concerning intimacy is true for the Lublin backyards as they potentially constitute perfect scenery for an authentic tourist experience. Over ten years ago, Lublin authorities had tourist tracks marked out around the city<sup>6</sup>. Some of these take the tourists away from the main streets and beaten tourist routes

<sup>6</sup> The Jagiellonian Trail of the Lublin Union, the Heritage Trail of the Lublin Jews, the Multicultural Trail, the Trail of Famous Lubliners, the Architectural Trail.

into a labyrinth of lanes (but not the backyards), emphasizing the buildings that stand along the way, which although not seen as particularly unusual, commemorate notable residents of Lublin or the Jewish community exterminated during World War II. Yet even though the tourist has a chance to see what is below the surface, it is still a mere foretaste of the essence of the city in its entirety. Open-air cultural events (fairs, street theatres) were a successful attempt to include quiet public urban space into the tourist space of the city. Wide streets and city buildings of Lublin were not chosen as a setting for the 2010 commercial that was shot as part of the *Lublin. City of Inspiration* promotional campaign. Instead, the commercial features narrow, quiet passages and lanes, backyards humming with life (one can hear sounds of playing children or a barking dog) and encircled interiors acting as guardians of the past. Also, in 2010, during the Night of Culture, the tourists' and residents' attention was directed to the potential of the Old Town's urban space<sup>7</sup> (including the backyards) and its material heritage and history.

### **Wroclaw**

Over the past few years *Wroclaw – the Meeting Place* has been the main tagline used for building up the image of the city as a tourist attraction [24]. Flagship landmarks (the Centennial Hall, the Market Square or Ostrów Tumski) and local cultural and business institutions are intended to create a common ground for agreements. In *Strategia rozwoju turystyki dla Wrocławia na lata 2008–2013* (2008), brand products include event and cultural tourism exploiting the potential of the historical heritage and the living culture of the city (official and institutionalized as it is) as well as business tourism and 'multiculturalism' [23]. The *Strategia rozwoju turystyki...* authors have classified the 'atmosphere of the city' as a component of event and cultural tourism. They claim that 'a great number of young people' and 'the city centre with its undying business, scientific activities and entertainment' are characteristic features of this component, but as a matter of fact, these traits are only indirectly linked with the space. These young people are certainly students spending most of their time in the centre (this is where academic buildings and popular student clubs are located), but when they leave for summer, the city is not asleep. On the contrary, it still teems with life. In case of business, science or to a smaller extent, entertainment, life goes on in interiors rather than on the streets.

Tourist routes described on the official city website rarely go beyond the most important (popular) and standard landmarks. There are but a few routes that offer a different and more human/personal perspective, and refer to the events that (re)shaped the identity of the city. Among them are the routes included in the WroclawCityTour agency offering:

<sup>7</sup> The project website for 2010 reads: "This time we'd like to take you to quiet places, off the main streets and into the labyrinth of lanes and backyards of the Old Town to rediscover the beauty of our city that we often miss in fuss and bother of everyday life. History is not only monuments and dates. It is also the city itself, our Lublin, a living witness. Let's take a fresh look at our historical heritage and see how powerful and relevant it is. Let us ride the tide of history, and we shall set course for the future!" ([http://www.nockultury.pl/Noc\\_Kultury\\_2010-1-145-3.html](http://www.nockultury.pl/Noc_Kultury_2010-1-145-3.html), access: 3.04.2013). A brochure under the title *Lubelskie podwórka. Zapis subiektywnego odbioru miasta* (Lublin backyards. A record of subjective reception of the city) was published as part of the project. It is a collection of stories about the Old Town backyards published in daily newspapers.

*Festung Breslau, Old Breslau, New Wrocław or War Damage and Festung Breslau History – 1945*. By contrast, the Municipal Office has embarked on an interesting project known as *The Look Up! Project* in cooperation with the University of Technology. Its aim is to draw the tourists/passers-by attention to interesting architectural details of buildings by fitting illuminated *Look Up!* tiles in paving slabs<sup>8</sup>. A tour ‘in the footsteps of Eberhardt Mock’ is another noteworthy tourist product. Even though Commissioner Mock himself is a fictional character<sup>9</sup>, the tour is an opportunity for tourists to set out on a symbolic journey ‘away from the city centre’ to more ordinary places (e.g. Psie Budy [Doghouses Street]) or sites where the tourists do not go (the Police Headquarters in Podwale Street). There they can feel the atmosphere of the pre-war Breslau including its dark side.

A survey of tourist traffic in sub-regions of Lower Silesia carried out in 2012 for the Marshal’s Office of the Lower Silesian Voivodship studied the results of image creation and the reception of this image in practice. It revealed that the image of the city as a tourist attraction relied on such factors as multiculturalism<sup>10</sup>, a rich cultural offering or the buildings of the Old Town (the Market Square, old tenements and the City Hall). The fact that the marketing activities taken seem to be clearly in line with the created image of the city may be pleasing, but the tourists still have no guarantee of a close, authentic encounter with the city, its space or its residents. It all points to a conclusion that the tourist image of the city resembles a jigsaw with some of its elements missing; we can see the representative city buildings, but they seem to be marginal rather than representative against the huge urban landscape.

With a number of organizational units responsible for tourism in a broad sense (the Bureau for Sports, Tourism and Recreation in the Municipal Office, the Office for City Promotion and the Lower Silesia Tourist Organization), it is surprising that the authorities fail to run consistent campaigns to promote the image of the city. Their actions seem incidental and haphazard (in terms of the relationship with the city, its residents and culture<sup>11</sup>) in the context of Wrocław’s aspirations to ‘remain’ the European Capital of Culture and accordingly, the centre of cultural tourism exerting international influence for more than just a year.

The question arises here regarding the role of the Old Town’s lanes and backyards in building up the identity of the city. As was the case with Lublin and other cities, the shape of Wrocław’s Old Town is determined by topography as well. The oldest part of the city emerged in a place where the Oder River is easiest to ford and splits into

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<sup>8</sup> Projekt „Głowa do góry” (2013).

<sup>9</sup> Eberhardt Mock is a character of Marek Krajewski’s bestseller detective stories taking place in interwar Wrocław (Breslau – at that time).

<sup>10</sup> Multiculturalism in the local context can only be thought of from the historical and physical perspective of heritage left by the pre-war Breslau society, which was diversified both in terms of culture and ethnic origin.

<sup>11</sup> The European Capital of Culture Wrocław 2016 logo features a stylized letter “W” as the only reference to characteristic elements of urban space. The letter represents a simplified image of the steep roof of the City Hall. Wrocław’s Dwarves and the Four Temples Quarter are equally significant as promotion tools, though, except for the location, the Dwarves’ relationship with the city and its history, culture and heritage is very remote, if any.

several branches flowing around a number of islands. Churches and other historic buildings prevail on Ostrów Tumski as virtually none of the houses or defensive structures of the oldest settlement have survived to the present day. For topographic reasons, the city mostly developed on the flat terrain on the southern bank of the river along a trade route running from north to south. The *Starówka* encompasses the Old Town (i.e. the Market Square and its surroundings) and the so-called New Town situated within the limits formerly demarcated by the defensive walls that were pulled down in the 19<sup>th</sup> century and the moat that has survived to the present day. What has also survived is the regular, geometric system of streets around the Market Square, dating back to medieval times. Wide streets running from north to south, such as Piaskowa, Szewska or Świdnicka/Kuźnicza, create steep perspectives ended with stately buildings standing on the Oder River bank (e.g. the main building of Wrocław University or the lofty towers of Ostrów Tumski that can be seen in the distance). They are promenades by nature, they merely connect two points, and, straight as they are, they have lost their ‘mysterious atmosphere’. Characteristic features of the urban system and buildings in the historic heart of the city show that, unlike Lublin, where everything is typically small, not to say cramped, the today’s Wrocław is marked by openness and a vast panorama. Yet this has not always been the case. According to Szafkowska (2001), in the early 20<sup>th</sup> century, Wrocław was still being associated with a maze of winding lanes with irregularly built houses straddling the inner moat (the so-called Oława Miejska) [25]. Wattle-and-daub houses with wooden galleries on storeys were built from cheap materials, they were mostly home to craftsmen. Although they were poor, cramped and gave rise to sanitation concerns, the lanes of Alt-Breslau enjoyed great popularity in iconography<sup>12</sup>, and to some extent, they served as a tourist attraction in the 19<sup>th</sup> century portrayed on postcards and lithographs.

The Old Town’s lanes (Zaulek Ruski [Ruthenian Lane], 7 Kół [Seven Wheels Lane], Zaulek Zamkowy [Castle Lane], Zaulek Pokutniczy [Penitents Lane] or Zaulek Koci [Cats Lane], see [10]) fell victim to both planned redevelopment and the turmoil of war. These factors resulted in the filling in of the inner moat, the redevelopment of the street system in the first half of the 20<sup>th</sup> century, war damage, and construction works on the East-West Route. Zaulek Koci that had been situated in the northern part of today’s plac Dominikański [Dominican Square] was ultimately pulled down in the 1950s [25]. This points to the conclusion that to some extent, both post-war Wrocław and the pre-war Breslau have wilfully eliminated the ‘provincial features’ from its identity, connected with the closeness of buildings and social diversity. As a result, the lanes and backyards no longer determined the *genius loci* of the city, and gave way to open planes, fine squares, facades and public buildings.

The way the *Starówka* looks today can be largely attributed to post-war reconstruction planning, where the restoration of patrician houses to their original form had to give way

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<sup>12</sup> Artists often portrayed lanes and some of the backyards in the Market Square. The images were then printed on postcards, which suggests that the lanes and the backyards were visually attractive, and to some extent, valuable as a tourist attraction. An interesting collection of pictures featuring Oława Miejska (before and after it was filled in) can be found in *Breslau malerische Architekturen* by O.F. Probst, dated 1900.

to public buildings and churches. Consequently, squares and residential blocks marked by the absence of any style (so typical of the Communist regime) began to emerge in what was once the historic old town. The squares were primarily used as car parks. The pre-war redevelopment of the centre and its oldest buildings was connected with the pulling down of the city fortifications, infrastructure development and the improvement of sanitary conditions. Though the *Starówka* dates back to the Middle Ages, building exteriors mainly resemble Baroque, Art Nouveau or Modernist styles. Historic character (or pseudo-historical in many cases) is reflected in buildings near the Market Square and in the historic suburbs of Przedmieście Oławskie and Przedmieście Świdnickie. Only very few places, such as lanes within the inner block of the market square (Stare [Wielkie] Jatki, Psie Budy) or buildings in the so-called Four Temples Quarter seem to be quiet and atmospheric.

The Old Town's backyards have been deprived of their residential function nearly completely in favour of being used for administrative, commercial and educational purposes. The majority of them seem to be spaces that belong to nobody, and they are fully occupied by cars (Ill. 3). This is particularly true about the backyards of houses adjacent or very close to the Market Square. They are used for a variety of purposes, almost none of them connected with the residents' daily activities. It is impossible for tourists to get there as they are used as workplaces for service establishments that can be entered into from the Market Square only (Ill. 4). In some cases, they are used as café or restaurant patios, but these are only made available to guests in season. Backyards in the Four Temples Quarter, between Świętego Antoniego and Włodkowica streets, are slightly different. They are used for commercial and other purposes, but their primary residential function is still significant. Though enclosed with buildings, they are large areas with mixed recreational (green areas, shabby playgrounds or sandpits) and practical functions (garages, cubbyholes, overfilled dustbins, Ill. 5). They have deteriorated considerably in terms of social functions and landscape, and their 'wounds' are showing where buildings had once stood, but were pulled down (Ill. 6). Yet surprising, but ugly and mostly with impersonal image, they do not give much information about their former residents, and even less about those who live there today. As a matter of fact, the only backyard that has not lost its identity is the one at the back of Włodkowica Street, in front of the White Stork Synagogue. It is a popular meeting place for young people with patios being opened there in summer, and only a small plaque has been put on the wall to serve as a reminder that the yard was a place where the Nazis had been rounding up Jews prior to deportation during World War II (Ill. 7).

Backyards surrounded by quiet houses at Plac Wolności [Freedom Square] and Kazimierza Wielkiego Street are quite surprising. They conceal architectural details that the tourists are not familiar with (Ill. 8). The backyards on Ruska Street are marked by a surprising mixture of past (historic buildings or empty spaces where houses once stood) and present (carpet hangers, dustbins, small squares, graffiti, see Ills. 9, 10). With their ugly architecture and somewhat industrial character, they have become a place where old meets new. It can be said that a specific, contemporary community used graffiti to claim ownership of the historical (alien) space, even if there are people who call such 'personalization' acts vandalism.

To sum up, the backyards of Wrocław's Old Town, as well as those few lanes that have survived to the present day, are predominantly important for the reconstruction of the

historical identity of the city. Their low aesthetic values are irrelevant because their ugliness and deficiencies are determined by specific processes that created the contemporary image of the city.



III. 3. Backyards situated behind the southern frontage of the Market Square in Wrocław are partly blocked with cars. Source: D. Chylińska (2013)



III. 4. Commercial outlets and car parks in the backyards located behind the eastern frontage of the Market Square in Wrocław. Source: D. Chylińska (2013)



III. 5. A partially upgraded backyard between Św. Antoniego and Włodkowica Streets (the part that is adjacent to the revamped White Stork Synagogue). Source: D. Chylińska (2013)



III. 6. Gable-end walls of houses in an unkempt backyard at Włodkowica Street show where no-longer-existing buildings used to stand. Original cobbles can be seen in the central part. Source: Chylińska (2013)





III. 7. The yard in front of the White Stork Synagogue at Włodkowica Street and a plaque that has been put on the wall to remind that it was a place where the Jews of Wrocław had been rounded up prior to deportation to death camps. Source: D. Chylińska (2013)



III. 8. A rear, 'hidden' facade of the former Bank of Reich (pl. Wolności 10). Source: D. Chylińska (2013)



III. 9. The old and (meets) the new – backyards at Ruska, Włodkowica and Św. Antoniego Streets (Wrocław). Source: D. Chylińska (2013)



III. 10. “Personalized” backyards at Ruska, Włodkowica and Św. Antoniego Streets (Wrocław). Source: D. Chylińska (2013)

## Katowice

There is a fundamental difference between Katowice and the other two cities. In 2015, Katowice will only be celebrating its 150<sup>th</sup> anniversary. Town rights were a consequence of the development of industry and transport systems in Upper Silesia in the 19<sup>th</sup> century. Katowice grew up around the village of the same name with housing estates being built, rebuilt and merged. Yet none of these locations was chosen to be a new city centre. Instead, it was established around the square lying at the crossroads of trade routes running from east to west and from north to south. The transportation functions and industrial character of the city are most likely to have caused the authorities to give up classical or medieval urban planning concepts. Hence, the city does not have a market square<sup>13</sup>. In Katowice, the development of modern planning concepts seemed to be in line with urban system planning control, but it often led to the deterioration of the semantic value of urban space [26].

Today, the city centre encompasses a quadrangular area with four squares in each corner of the quadrangle: plac Wolności [Freedom Square], plac Andrzeja [Andrew Square], plac Sejmu Śląskiego [Silesian Parliament Square] and rondo im. gen. J. Ziętka [General Jerzy Ziętek Roundabout]. Here, at the crossroads of the main trade routes emerged the most important institutions and objects. At present, only the Wrocław–Kraków railway crosses the city centre with the main roads (crosstown expressway and the A4 motorway) running across its outskirts from east to west.

As the notion of ‘the market square’ is understood differently, so are those of ‘starówka’, ‘stare miasto’ (the English term *old town* can stand for both of them) or ‘śródmieście’ (English: city centre). The buildings lined along Staromiejska and Mariacka Streets were built less than 200 years ago, and as a matter of fact, they are younger than some districts (such as Szopienice or Bogucice) that were only incorporated to Katowice later.

Large city centres are often popular destinations in city and cultural tourism, but Katowice has no buildings/monuments/places that would generate tourist traffic and serve as a ‘flywheel’ comparable to the Market Square or Ostrów Tumski in Wrocław, or the Old Town in Lublin. Hundred-year-old working-class districts of Nikiszowiec and Giszowiec, which receive the widest coverage in promotional leaflets, are situated on the eastern fringe of Katowice. Neither the image of the city nor the specific tourist offer presented in the official promotional materials allows it to be said without doubt, where the *genius loci* of the city is, what the factors determining its atmosphere are, and what elements of urban space will catch the tourist’s eye and inspire.

The question remains as to whether or not the city centre backyards have their own unique features that would make them part of the landscape that is clearly identified with the city and its identity. In most cases, the answer is *No*. Rows of cubbyholes (Ill. 11), used by workers to store tools, coal, or keep animals such as doves, were quite common in the backyards in the past. Today, they are non-existent or have been transformed. Bread ovens, cubbyholes, and even pigsties were quite typical of the green backyards

<sup>13</sup> The above-mentioned square situated at the crossroads of aleja Korfantego [Korfanty Avenue] and Staromiejska Street is referred to as the Market Square. Additionally, the borough architect who is currently in office would refer to the Market Square as a “public space in the centre of Katowice” rather than as “a market square” [19].

of Nikiszowiec and Giszowiec, which, in the architects' opinion, were intended to have practical and social functions. All of these objects no longer exist or have been transformed to serve other, more contemporary purposes (e.g. garages).



III. 11. A backyard in Kochanowskiego Street (Katowice) – traditional cubbyholes located in backyards are disappearing from the city landscape. Source: G. Kosmala (2013)

Among various logotypes used for promotional campaigns, there is one featuring *Spodek* (The Saucer), an entertainment venue erected in 1951 (it is symptomatic that this object is the best known/most recognizable building) [11]. But in the last couple of years, when Katowice applied for the title of the European Capital of Culture, another logo was promoted. Its authors intended it to be a colourful, cubist heart, but interpretations varied widely (some even thought it was a paintbrush stained with paint). Today, the promotional slogan of the city is *Katowice. City of Big Events*, but it is worth remembering that in 2012, the city had a different slogan, *Katowice. City of Gardens*<sup>14</sup>, and yet another slogan, namely *Katowice. The New Forms Centre*<sup>15</sup> is to appear soon. These big events are mainly

<sup>14</sup> It has never been clear why Katowice should be associated with gardens. It might have been a reference to the concept of the city as a garden coined in the early 20<sup>th</sup> century when the construction works on the district of Giszowiec were underway. Katowice is stereotypically associated with mines and industrial areas rather than gardens. It is the forests and parks covering nearly half of the city area that are a distinctive element, except for the industrial buildings and transport system.

<sup>15</sup> As part of the new promotional strategy, cf. Media Partner, 2012. The logo will still feature the cubist heart (or the paintbrush). One has to admit that variants of the logo corresponding to individual categories to which the slogan refers are less controversial. According to the Media Partner, 2012, the authorities want to make its message concerning the image more consistent in order to tame the present chaos. Katowice intends to emphasize, among other things, its multi-ethnic roots, the

music (e.g. Rawa Blues, Nowa Muzyka, Off Festival, etc.) and theatre festivals (e.g. *Letni Ogród Teatralny* [Summer Theatre Garden], *Festiwal Teatrów A PART* [The A PART Theatre Festival], *Festiwal Teatrów Lalek Katowice – Dzieciom* [Puppet Theatre Festival – ‘Katowice for Children’], etc.). In nearly all cases, location is the only element connecting the promoted events with the city.

The invitation extended to tourists via the Department of Promotion and Tourist Information Centre is not really consistent with the message concerning the image. The Department’s official leaflet and website inform readers about the most important events, but the absence of a simple, attractive event calendar in a ‘city of big events’ is striking. In terms of information and promotion, emphasis is placed on history and its physical and spatial dimensions, e.g. architecture and buildings. The working-class districts of Nikiszowiec and Giszowiec, which date back to the early 20<sup>th</sup> century, already function as tourist products – they receive the widest promotional coverage, and they have been placed on the Industrial Monuments Route promoted by the Upper Silesian Voivodeship. Two tourist tracks have been marked out around the city centre<sup>16</sup>, and they concentrate on history and architecture with elements of cultural policy (at least this is what the list of objects situated along the tracks suggests).

The authorities are creating an image of Katowice as a developing, modern, open-minded and lively place rooted in industry, where (post)modern architecture and culture<sup>17</sup> play a central role. There is very little room left for Upper Silesian culture, and this is quite surprising as Katowice is thought to be (quite wrongly) the capital of Upper Silesia. Scarce references to the Upper Silesian identity are predominantly historical and political, and connected with the Silesian Uprisings and their role in the history of Poland in general<sup>18</sup>.

What is the place of lanes and backyards in this turmoil of concepts for imagery and promotion, if there is any? No more than three references to backyards can be found in promotional materials after a close scrutiny, and in all cases, the backyards seem to be insignificant. Reconstruction of the House of Press (a building adjacent to the

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image of the city as a meeting place (like Wrocław), and Upper Silesian heritage. This seems to be difficult to achieve considering the fierce disputes concerning exhibition plans of the Silesian Museum.

<sup>16</sup> They have been marked out on a map of the city centre (Katowice. Step by Step...). The *Przewodnik...* (2012), also describes two tracks (referred to as ‘walks’), but they run elsewhere [18]. On top of that, there is also the *Route of Modernism in Katowice*, which runs through other places than the previous two. This might suggest diversity and a great number of options for tourists, but such an interpretation is in contradiction with the official statement of the Tourist Information Centre mentioning two marked out tourist tracks. It would be more accurate to say that it reflects chaotic search, just as in case of the logo and the slogan.

<sup>17</sup> The reconstructed main railway station, the underground bus station, and the shopping and commerce centre *Galeria Katowice* [Katowice Mall] are referred to as “a new city centre – a new, timeless landmark of the city”, see [15].

<sup>18</sup> Awarding the historical monument status to the Silesian Parliament, the Polish president Bronisław Komorowski uttered words that seemed to reflect this trend: “the heart of Silesia was beating here for many years” [29].

Market Square) is expected to display as a side effect ‘an authentic piece of Silesia’, i.e. a backyard at the back of the building, explains borough architect Michał Buszek [19]. In the *Nikiszowiec Giszowiec* brochure there are several photographs of backyards that are hard to identify, probably from these mentioned districts. In the note about Nikiszowiec one can read that ‘life was comfortable: backyards were green and there were gardens’ [18].

Nonetheless, promotional materials fail to communicate the message about something that the borough architect calls ‘an authentic piece of Silesia’. Consequently, they fail to raise (mass) tourists’ awareness of this place. Tourist tracks are far away from the backyards, and visitors can only see the fronts of the buildings<sup>19</sup>, which is also true of the *Route of Modernism in Katowice*. Whether the backyards have been ignored deliberately or not seems irrelevant, but an attempt to analyze the conditions of this situation does seem worthwhile.

Except for districts where tower blocks prevail, backyards can be found nearly everywhere, including the city centre (but not in its northern part) and the much promoted districts of Nikiszowiec and Giszowiec. With promotional efforts concentrated on these three areas, the backyards might have a certain role to play in attracting tourists as well. It is possible, though, that backyards (especially those found in working-class districts associated with native Upper Silesian people<sup>20</sup>) might be contrary to promotional concepts or visions of the city. Being Upper Silesian is associated with traditionalism/conservatism, religiousness and diligence (particularly in manual labour). All these elements, plus the Upper Silesian language and (vague) references to German heritage, are the opposite of the vision of a modern, developing city where people have a good time and look ahead rather than back [11]. Even so, the abovementioned arguments fail to explain why backyards are disregarded in the centre of Katowice as it had not been dominated by the working class in the past (at least not until 1945).

No matter what intentions people and institutions responsible for promotion might have, the backyards themselves must be able to attract tourists. They also have to be in a relatively good condition so as not to drive tourists away. From the point of view of general appearance and aesthetics, the backyards of Katowice look bad. Dirty and devastated, they often stand in stark contrast to renovated building exteriors. They ceased to be places where residents doing their everyday errands and, occasionally, can meet each other. Today, only drivers meet in backyards, and for good reason – backyards have been turned into car parks (Ill. 12). In some backyards, there is some space left for playgrounds, but they offers limited possibilities and more often than not, provoke destructive behaviours in the presence of overwhelming dirt, dullness and devastation (missing bricks, rubbish and offensive graffiti not to mention the social aspects). An attempt made in 2011, as part

<sup>19</sup> The *Przewodnik...* (2012) often encourages tourists to stop in front of gates leading to backyards and pay attention to all sorts of architectural details, but they never go beyond the frontier, and thus the backyards remain intact [18].

<sup>20</sup> Movies directed by K. Kutz did much to create these stereotypes. In his book *Invented Silesia* (2012), M. Smolorz challenges stereotypes and myths, particularly those produced by movies and television [22].

of the TAKK project<sup>21</sup>, to revive the backyards and make them resident-friendly failed to change anything. What initially seemed a success (the intended activities had been performed in three backyards, and highly acclaimed by residents and media in particular) proved an insignificant, one-off artistic act. The backyards deteriorated again, the only difference being the faded traces of the performers' work [9] (Ill. 13).

There are also backyards, to which outsiders have no access. Heavy gates, solid bars and intercoms prevent them from getting in, and it does not necessarily mean that these devices were put in to protect a newly renovated backyard. Locked gates appear when backyards become car parks or yards used by businesses seated in tenements or annexes outside official channels or when the residents want to protect themselves and their cars from strangers who come there and use these areas quite contrary to the principles of social conduct (as public toilets, for example).



Ill. 12. The main function of backyards in Katowice is that of a car park, followed by that of a waste storage area (even in very small backyards). Where the backyards are big enough, garages and commercial outlets emerge, but they bear no resemblance whatsoever to the surrounding buildings in terms of architecture and, in some cases, construction materials (corrugated sheet!). Source: G. Kosmala (2012, 2013)

<sup>21</sup> TAKK was the acronym for *Tymczasowa Akcja Kulturalna Katowice* [A Temporary Cultural Action for Katowice] – a project its organizers intended to involve street artists in activities aimed at smartening and livening up the selected backyards. These actions were taken with the residents' consent, and they were supposed to strengthen community bonds, and consequently, make the residents feel more responsible for this element of shared space [12].



III. 13. One of the three backyards that was upgraded as part of the TAKK project. Some ornaments are left on walls. Traces in the snow show that the backyard is used as a car park. Source: G. Kosmala (2013)



III. 14. Backyards in the central business district are where the trade is concentrated. Source: G. Kosmala (2013)



In the central business district (Stawowa, Mickiewicza, 3 Maja and other streets), backyards have become commercial spaces. New, mostly small commercial outlets were built next to the existing shops, making the cramped spaces even more cramped. Advertisements, signs and neon lights bring illusive accents of colour to dull and grey backyards, adding to visual and spatial chaos rather than improving their aesthetic qualities (Ill. 14). Development and the walling off of backyards sometimes leads to the creation of mazes – this can make it very difficult to find a way out, and do not seem to offer any significant benefits.

The backyards of Giszowiec and Nikiszowiec have different characteristics. In Giszowiec, where cottage-like single-family houses<sup>22</sup> prevailed, the backyards have become private spaces. In each case, the condition and (only visual) availability of backyards and houses depends on the owner. Abandoned, unkempt properties stand next to properties that are well maintained and upgraded (sometimes also fenced in) or the properties whose features have been changed completely through extensions and upgrades. Today, the backyards, along with the entire development plan for Giszowiec, are but a shadow of their past. In opposition, backyards of the old Nikiszowiec seem really unique.

Nikiszowiec consists of rows of low-rise, red brick buildings surrounding big backyards situated in central parts of plots (Ill. 15). This sort of planning might have helped eight backyards survive. Furthermore, in other places backyards have been redeveloped and put to various uses (car parks, green areas, devastated communal areas). All backyards in Nikiszowiec are marked by a great variety of green areas<sup>23</sup>. They remain social interaction areas with many benches, tables, sandpits and playgrounds, miniature gardens and paths (Ill. 16). Carpet hangers can be found there, and laundry is often pegged out. From open windows, come the sounds of family life or pop music songs, with lyrics in stylized Upper Silesian. The fact that the backyards and the estate are full of life is also clear when one takes a look at refuse lying here and there, heaps of rubble from renovated apartments strewn against the walls, graffiti<sup>24</sup> and traces indicating that gates and backyards were used as substitute toilets. Some backyards have been turned to car parks, in others there are waste containers – sometimes in the very middle. Brick and cobblestone-paved streets and squares of Nikiszowiec are unbearably hot in summer and there is nowhere there to sit. Such places can be found in backyards, which guarantee some shade and more bearable temperatures, but this space is reserved for residents and not for tourists, and even if the latter are brought there by guides as part of the tour, they will find no tourist infrastructure whatsoever there.

If someone decides to go through one of several gates that lead to each backyard, they might have a feeling of being immersed in the past or at least escaping from everyday reality, slowing down and coming to a halt. Those who came to see the estate noticed it and shared

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<sup>22</sup> Giszowiec was based on the concept of a city-garden. It was an ambitious spatial development plan, but what remains can only be seen in a few streets now, and in most cases, the perspective is obscured by multi-storey apartment blocks.

<sup>23</sup> In the 19<sup>th</sup> century, greenery was believed to be crucial for physical and mental hygiene, which were very important in industrial estates. Today, trees and grass might not be the same, but the concept has been preserved (in fact, the backyards could have been turned to car parks, but they were not).

<sup>24</sup> Graffiti is sprayed as a token of support for one of the local football clubs, which can be considered a manifestation of identity as well.



III. 15. A “green” backyard in Nikiszowiec. Source: G. Kosmala (2013)



III. 16. Backyards of Nikiszowiec have been “developed” by residents for practical and leisure purposes. Source: G. Kosmala (2013)

their observations on numerous websites. They encourage, or even urge, readers to go and see the backyards. Visits to Nikiszowiec are also documented in photographs, and pictures of backyards are not rare in photo galleries<sup>25</sup> shared over the Internet.

The ‘young’ city of Katowice has almost no lanes, one of the reasons being that city planning and development gathered momentum in the industrialization period, but more importantly, it might have been caused by an intention to change the image of the Polish Katowice in the interwar and post-war periods. The lanes are few, and they seem to have emerged coincidentally when the new investment project blocked the existing spatial sequence. They are used for commercial purposes (cafes, shopping arcades) or as car parks. The situation is different in those parts of the city that have not been entirely redeveloped (Nikiszowiec, Ill. 17). Tourists walk along the lanes or pseudo-lanes because they simply have to do so if they want to do some sightseeing around the estate (by chance? because no references to them are made in tourist brochures).



Ill. 17. Lanes in Nikiszowiec are primarily used as car parks. Source: G. Kosmala (2012)

Cognitive values might be a motivation to come and see the backyards next to (very few) aesthetic qualities because the city authorities promote architecture in the first place. Such styles as Modernism, Art Nouveau, Eclecticism, Neo-Baroque, Neo-Classicism or Neo-Gothic are frequently found in Katowice. On the surface, architectural solutions and details are becoming more and more interesting to look at, but the accessible backyards

<sup>25</sup> M. Malanowicz-Pęczak (2013) is the author of one of the most interesting galleries [16]. Available from: <http://www.malanowicz.eu/mm/pasje/architektura/industria/osiedla/Nikiszowiec.htm>.

are void of any embellishments as if architects and constructors were driven by extreme functionality and minimalism. Gates sometimes suggest what might be expected inside, but the message they send may be misleading. Rid of aesthetic or architectural qualities, devastated and used for commercial purposes or merely as car parks, the backyards in the city centre of Katowice are completely dead. They have not become a platform for daily social interactions, and they do not create the atmosphere of the city.

The timeline seems to show a *status quo*. Unlike Wrocław, the backyards and lanes of Katowice were not advertised in the past either, not even on postcards or leaflets. In publications about the city as it was a century ago and in the interwar period, which were based on the then drawn materials<sup>26</sup>, no reference is made to the spaces discussed herein. Backyards and lanes in Katowice have never had any significance for tourism except for being used to a small extent for commercial purposes as locations for cafes or travel agencies.

## 5. Summary

The three examples discussed herein show that old town backyards may reflect the *genius loci* of a city, but in each case, in a slightly different manner.

Backyards and narrow, winding lanes determine the specific urban and social/cultural character of the *Starówka* in Lublin. They enhance the feeling of a close ‘physical contact’ with the city, which is connected with its topography. In the social aspect, they make it possible to sense the atmosphere of places, where nations and individuals always lived very close to, or even intimately with one another. Creating the image of the city as a tourist attraction, which is obviously based on its most valuable tourist asset, i.e. the *Starówka*, the authorities only indirectly refer to atmosphere, intimacy and close contact with the daily lives of contemporary residents in their promotional materials. The development of tourist tracks and facilities plays but a marginal role in this concept.

The roles that backyards play in the creation of the *genius loci* of Wrocław city centre should be analyzed separately for those areas that are directly adjacent to the Market Square and those located between the East-West Route and the city moat. The former do not guarantee an close contact with the city nor do they define the identity of this part of the *Starówka*. Their development can only be significant for location of tourist services such as cafe patios that offer an intimate atmosphere to tourists who are tired of the buzzing market square. On the other hand, the backyards in the Four Temples Quarter (ugly and unkempt, with wounds from demolitions or with surprising structures) may be significant for defining the identity of the place, and as such they have considerable potential for the reconstruction of the historical identity of the city. With the entire population having been replaced in the past, the backbone of the city was broken in a way. Entering the world of backyards in the Four Temples Quarter allows visitors to touch this lost identity<sup>27</sup>.

<sup>26</sup> A considerable number of such works have been published. For example, Kaganiec (2012) is focused on the cities situated in the east of Upper Silesia, and the postcards featuring Katowice have the largest share in the publication [5].

<sup>27</sup> This potential has been noticed, and partially exploited by the Municipal Office of Wrocław. The cultural tourist track could be marked out through backyards and lanes of the Four Temples Quarter.

The backyards situated at plac Wolności are a *terra incognita* for tourists, although building exteriors such as the back facade of the former Bank of Reich inspire awe with their grandeur and architectural details. On the other hand, the backyards between Św. Antoniego, Włodkowica and Ruska Streets allow visitors to discover the link between historical and contemporary Wrocław despite spatial chaos and low aesthetic qualities (not to say ugliness).

At present, the city authorities seem to greatly underestimate the tourist potential of the backyards and lanes of Wrocław's *Starówka*. Even the activities taken in the Four Temples Quarter area<sup>28</sup> are not integrated with the whole district space, and they seem to be concentrated on the White Stork Synagogue only.

In Katowice, backyards are used as car parks or locations for waste containers conveniently placed in the very middle. In the central business district, they also have a commercial function. Tourists should keep their distance from backyards developed in this way or pay but a short visit, if necessary, as they are a foreign space, a kind of no-man's land, and as such they repel and, irrational as it might be, evoke a sense of danger. Because of having low architectural and poor aesthetic qualities, and being mostly inaccessible to visitors, the backyards of Katowice are not a tourist attraction.

Nonetheless, Katowice is only beginning to create its image and prepare a consistent offering for tourists. As such, the city is probably yet to discover that tourists are interested in everything, and backyards can be a valuable component of the offering as they allow visitors to find out what the city life looks like from the inside. They may have a certain potential, and there are a few restaurant owners who try to exploit it to some extent (although this might be purely incidental or caused by the lack of room in front of the establishment), but this potential is much smaller in comparison to Wrocław or Lublin, which is connected with a short history of the city and contemporary visions and activities of its authorities in the area of planning and development. The borough architect is aware of the significance of backyards, and this is rather important as the architect has tools to exert influence with an aim of improving their condition (particularly visual), which is essential for tourism. However, the city authorities have ambitious redevelopment plans for the city centre, and these plans generate a serious risk that backyards will remain in the background, and some of them will even disappear. Furthermore, the residents' commitment (most of them are still 'strangers' even though they have been living in the city for years) does not hold much promise for quick changes.

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In practice, the concept is difficult to implement, which is mainly due to complex ownership structures and investment plans of the city and private investors. So far, the focus has been placed on the upgrading of the inter-block space around the White Stork Synagogue.

<sup>28</sup> Lost in urban space without any help from the tourist brochure, the tourist will find it difficult to say where the limits of this district are. He can find 'The Crystal Planet', a monument by Ewa Rossano, which was put up nearby in 2012, representing a dancer (possibly a ballet dancer) wearing a dress embroidered with outlines of the continents, features small symbols of the religions present in the Four Temples Quarter. This is the only reference to history and significance of the place that the sculpture was meant to commemorate. A tourist information outlet located at the symbolical entrance to the borough, i.e. at the beginning of Św. Antoniego Street where the *Crystal Planet* monument stands, is expected to solve the problem.

Nikiszowiec and its 'living' backyards, which are both a tourist asset and an element defining the identity of the place should be analyzed separately. Both of these aspects are rooted in history, and it might well be that they have survived only because Nikiszowiec lies off the main roads. The redevelopment of Nikiszowiec and its status of a historical monument give reason to believe that the backyards will not be lost, and that the imminent changes will be well thought out and controlled.

## References

- [1] *Archipunktura...* Projekt „Głowa do góry”, 2013 (online), homepage: <http://www.glowadogory.pwr.wroc.pl/pl/oprojekcie.php> (access: 24.05.2013).
- [2] *Badanie ruchu turystycznego na Dolnym Śląsku w ujęciu powiatowym i subregionalnym wg Aktualizacji Programu Rozwoju Turystyki dla Województwa Dolnośląskiego. Raport końcowy. Badanie zrealizowane przez firmę BIOSTAT na zlecenie Urzędu Marszałkowskiego Województwa Dolnośląskiego*, Wydział Turystyki, Wrocław 2012.
- [3] Bossak-Herbst B., *Antropolis. Współczesny Gdańsk w wymiarze symbolicznym*, TRIO, Warszawa 2009.
- [4] Gawdzik Cz., *Rozwój urbanistyczny starego Lublina*, Ochrona Zabytków, Vol. VII, No. 3, 1954, 143-160.
- [5] Kaganiec M., *Pokażę wam inny Górny Śląsk. Katalog ze zbiorów pocztówek Muzeum Śląskiego w Katowicach*, Wydawnictwo Muzeum Śląskiego, Katowice 2012.
- [6] Kowalczyk A., *Nowe formy turystyki miejskiej*, Prace i Studia Geograficzne, Vol. 35, 2005, 155-197.
- [7] Krajewski M. (ed.), *Niewidzialne miasto*, Bęc Zmiana, Warszawa 2012.
- [8] Lalli M., *Urban identity*, [in:] D. Canter et al. (eds.), *Environmental Social Psychology*, Kluwer Academic Publisher, Dordrecht 1988, 303-311.
- [9] Malinowska A., *Podwórka przy katowickim deptaku znów nie zachwycają*, Gazeta Wyborcza, 25 May 2012 (online), homepage: [http://katowice.gazeta.pl/katowice/1,35063,11795794,Podwórka\\_przy\\_katowickim\\_deptaku\\_znow\\_nie\\_zachwycaja.html](http://katowice.gazeta.pl/katowice/1,35063,11795794,Podwórka_przy_katowickim_deptaku_znow_nie_zachwycaja.html) (access: 24.05.2013).
- [10] Małachowicz E., *Stare Miasto we Wrocławiu*, PWN, Warszawa–Wrocław 1985.
- [11] Media Partner, Czyżewski W., Lorenc M., Business Consulting, Imago Public Relations, *Brief: prezentacja głównych założeń strategii promocji Katowic*, 2012 (online), homepage: [http://opowiedzkatowice.pl/aktualnosci/17/nowa\\_strategia\\_promocji\\_katowic.html](http://opowiedzkatowice.pl/aktualnosci/17/nowa_strategia_promocji_katowic.html) (access: 30.10.2012).
- [12] *Nasze miasto. Tymczasowa Akcja Kulturalna w Katowicach – Artyści zaprojektowali kolorowe podwórka*, 2011 (online), homepage: <http://katowice.naszemiasto.pl/artukul/galeria/1035703,tymczasowa-akcja-kulturalna-w-katowicach-artysci,id,t.html> (access: 24.05.2013).
- [13] Niezgoda A., *Oaza pod trzepakiem*, Polityka, 8 October, 2005, 92-94.
- [14] Orzechowska J., *W poszukiwaniu istoty miasta – przez łódzkie podwórka przy ulicy Piotrkowskiej*, Turystyka Kulturowa, Vol. 1, 2010, 14-44.
- [15] *PKP S.A. i NEINVER tworzą nowe centrum Katowic*, PKP S.A., 2013 (online), homepage: <http://www.pkp.pl/node/2877> (access: 24.05.2013).
- [16] *Nikiszowiec*, Pracownia Architektoniczna „MP” Małgorzata Malanowicz-Pęczak, 2013 (online), homepage: <http://www.malanowicz.eu/mm/pasje/architektura/industria/osiedla/Nikiszowiec.htm> (access: 24.05.2013).
- [17] Probst O.F., *Breslaus malerische Architekturen*, Verlag des Herausgebers, Breslau 1900.

- [18] *Przewodnik po Śródmieściu Katowic*, Wydział Promocji, Urząd Miasta Katowice, Katowice 2012.
- [19] *Rynek mój widzę ogromny. Nasze Katowice*, Bezpłatny Informator Miejski, 2012, 4.
- [20] *Projekt Marka Lublin*, Samorząd miasta, Lublin 2013 (online), homepage: <http://www.um.lublin.eu/um/index.php?t=200&id=45198> (access: 24.05.2013).
- [21] *Słownik języka polskiego*, PWN, Warszawa 1996.
- [22] Smolorz M., *Śląsk wymyślony*, Antena Górnośląska, Katowice 2012.
- [23] *Strategia rozwoju turystyki dla Wrocławia na lata 2008–2013*, Urząd Miejski Wrocławia, Wrocław 2008.
- [24] *Strategia Wrocław 2000 plus*, Biuro Rozwoju Wrocławia Urzędu Miejskiego, Wrocław 1998.
- [25] Szafkowska M., *Dawne zaułki Wrocławia*, Muzeum Narodowe we Wrocławiu, Wrocław 2001.
- [26] Szymski A.M., *Genius loci – czyli o odkrywaniu i na nowo definiowaniu znaczeń w istniejącej przestrzeni miejskiej (trzy przykłady)*, Czasopismo Techniczne, z. 6-A/2008, Kraków, 162-166.
- [27] *Lublin miastem inspiracji. Informator turystyczny*, Urząd miasta, Lublin 2013 (online), homepage: [http://www.lublin.eu/images/media/1233919902\\_informator\\_polski\\_druk.pdf](http://www.lublin.eu/images/media/1233919902_informator_polski_druk.pdf) (access: 30.10.2012).
- [28] *Lubelskie podwórka. Zapis subiektywnego odbioru miasta*, Warsztaty Kultury w Lublinie, 2013 (online), homepage: [http://nockultury.pl//images/media/1275741395\\_folder.podworka.v2.1.pdf](http://nockultury.pl//images/media/1275741395_folder.podworka.v2.1.pdf) (access: 30.10.2012).
- [29] *Nowy Pomnik Historii. Nasze Katowice*, Bezpłatny Informator Miejski, January, 2013, 1.
- [30] Gądecki J., *Architektura i tożsamość – rzecz o antropologii architektury*, Wydawnictwo Rolewski, Toruń 2005.
- [31] Liszewski S., *Przestrzeń turystyczno-wypoczynkowa Łodzi*, [w:] *Atlas miasta Łodzi*, Plansza XXXIX, Wyd. Urząd Miasta Łodzi, Łódzkie Towarzystwo Naukowe, Łódź 2002.

MARIA KMIEĆ\*

## GREEN WALL TECHNOLOGY

## TECHNOLOGIA ZIELONYCH FASAD

## Abstract

Green walls are used as one of methods which for many years have been used to enhance the appearance of building elevations. They make it possible to introduce greenery into urbanised areas, which are often limited by the size of the building plot. They add an excellent aesthetic dimension to the so called 'blind' walls found in city centres. Green walls not only bring with them an element of beauty and integration with nature, but by being used to a wider extent, could also have a positive impact on the city's micro-climate. Various technologies enable the creation of green walls on the outside of buildings as well as in semi-open spaces and interiors. In this paper, five different techniques of setting up living walls are described, from the relatively simple technique of planting climbers that easily cover bare walls to modular panel systems or green wall systems with flower pots to 'living wall' solutions and finally, to Patrick Blanc's highly sophisticated patented vertical garden technology.

*Keywords: green wall, vertical gardens, technology and construction*

## Streszczenie

Zielone fasady to kontynuacja stosowanej na przestrzeni lat metody używania roślin do wzbogacenia elewacji budynków. Dają możliwość wprowadzania zieleni do przestrzeni miejskiej, często ograniczonej przez wielkość działki. Są doskonałym elementem estetyzacji „ślepych” ścian występujących w śródmieściach miast. Zielone fasady wprowadzają nie tylko element piękna, integracji z przyrodą, ale zastosowane na szerszą skalę mogłyby mieć także pozytywny wpływ na mikroklimat miasta. Różnorodne technologie zielonych fasad umożliwiają tworzenie ich na powierzchniach ścian zewnętrznych, w przestrzeniach półotwartych oraz we wnętrzach. W niniejszej pracy zostało opisanych pięć technik zakładania zielonych ścian, od relatywnie prostej techniki sadzenia pnączy, która pozwala w łatwy sposób pokryć puste ściany, poprzez systemy modułowe z paneli, ścianę opartą na ruszcie konstrukcyjnym z donicami, nowoczesne rozwiązanie „żyjącej ściany”, aż do opatentowanej technologii pionowych ogrodów Patricka Blanca.

*Słowa kluczowe: zielona fasada, pionowe ogrody, technologia i konstrukcja*

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## 1. Introduction

Green walls (vertical gardens) have in recent years become an interesting method of spatial design, combining the natural environment with urban space especially in places where there is not enough space for greenery. This constitutes a large problem especially for the housing environment, where green walls play an important role. People desire to be surrounded by nature even if for economic reasons, they are forced to live in cramped, large agglomerations. An efficient way of improving the quality of life is the introduction of plant-life in various forms like, for example, greenery on building elevations<sup>1</sup>.

Nature itself is the inspiration for vertical gardens. In many places in the world, we can admire vertical lawns on mountain paths; plants such as climbers, moss and lichen growing on rocks; and coastline cliffs decorated by carpets of multi-coloured flowers. Climbing plants have for a long time been used to decorate walls. Another method includes planting trees or bushes by the walls of building. This requires carefully securing the root system for it not to damage the walls of buildings and the appropriate fixing of plants to walls. Hedges and easy to nurture hanging plants are basic examples of vertical garden inspirations. Grass roofs are popular in Norway. Despite the simple technology used for this interesting solution, they are very durable<sup>2</sup>.

Placing greenery on the elevations of buildings has a lot of advantages. It enables the integration of the natural environment with the urban environment in places where there is not much free space. The vertical positioning of plants facilitates the washing away of impurities and requires much less water than horizontal gardens. Green walls significantly improve the look of cities, especially when they are placed on blind, bare walls. At the same time, they constitute an additional biologically active surface, which is very important for the ecosystem.

Due to the growing interest in green walls in recent years, both amongst designers and potential clients, a large number of technological solutions have emerged:

1. Facades with climbers planted at the base of walls.
2. Modular systems from grid panels.
3. Green wall systems with flower pots.
4. The so called 'living walls'.
5. Patrick Blanc's technology.

Each of the above-mentioned techniques requires the use of different techniques to fix plants to the ground as well as dilate elements used to sprinkle and dispose of water.

## 2. Facades with climbers planted at the base of the wall

Climbing plants (lianas) are characterized by thin, fast growing stems which are unstable, this is why they have tendrils which support them. Climbing plants attach

<sup>1</sup> T. Malec, *Ogrody wertykalne w przestrzeni polskich miast*, Czasopismo Techniczne, z. 6-A/2012, Kraków, 299-305.

<sup>2</sup> W. Kosiński, *Pionowe ogrody – idea, technologia i estetyka na nowy wiek*, Czasopismo Techniczne, z. 2-A2/2011, Kraków, 109.

themselves to the ground by using prehensile organs or by entwining themselves around a support. Climbing plants climb in particular ways:

- entwining plants – by wrapping themselves around a support,
- climbing plants – by attaching themselves to the ground with the help of tendrils, for example, the grapevine,
- climbers supporting themselves with the help of prehensile roots or surfaces adjacent to the ground, e.g. ivy,
- stretching plants – by leaning their stems against objects placed beneath them or supports with the help of tendrils, spikes, thorns, for example, climbing roses<sup>3</sup>.

Climbing plants have been used in various forms of applied and decorative arts for centuries. Information about the use of grapevines in arcades dates all the way back to Egypt, around 2600 B.C. In Babylon and Ancient Greece, both grapevines and ivy played an important role. In those times, plants were cultivated in containers. The Romans took over the cultivation of plants from the Greeks. The first descriptions of ‘green works of art’ come from those times. Pergolas were built for protection against the sun, giving shade to courtyards and roads. After the fall of the Roman Empire, there was less interest given to climbing plants. The next references to them come from the Middle Ages. Initially, climber plants were only used in castle gardens for decorative purposes, only later did gardens appear in front of city walls. In the times of Renaissance espaliers, pergolas, arcades and arcade alleys were built. In the Baroque period, a trend emerged for arbours surrounded by hedges, with bushes and trees appropriately trimmed. In the 17<sup>th</sup> and 18<sup>th</sup> centuries, many new species of plants were imported into Europe, and by the 19<sup>th</sup> century, all known species of climbing plants were available. The beginning of the 20<sup>th</sup> century saw climbing plants being used widely to combine architecture with nature. In this time, many publications on this topic appeared in specialist magazines. This dynamic rise of interest in using climbing plants in architecture was halted by World War I. In the 20-year period between the two World Wars, a new building trend based on the use of rock surfaces was not conducive to incorporating green vertical surfaces into the newly built urban structures. In recent years, when ecology has begun to perform an important role, greenery in architecture has become a factor in solving the problem concerning proximity to nature<sup>4</sup>.

The appearance of supporting constructions for climbing plants are determined by many factors. These are, amongst others, the size and rate of plant growth, blooming time or the type of prehensile organ. An appropriate solution should ensure that the construction lasts many years. By taking the species of plant and the climate into consideration, one should foresee if the framework will be visible for a certain period during the year or not. This has an influence on the appearance of the support. The selection of the size of its elements, which depends on the species of climbing plant, is also important<sup>5</sup>. Existing building elements such as balconies or pergolas can serve as supports for the plants to climb on.

<sup>3</sup> R. Baumann, *Domy w zieleni*, Warszawa 1991, 18.

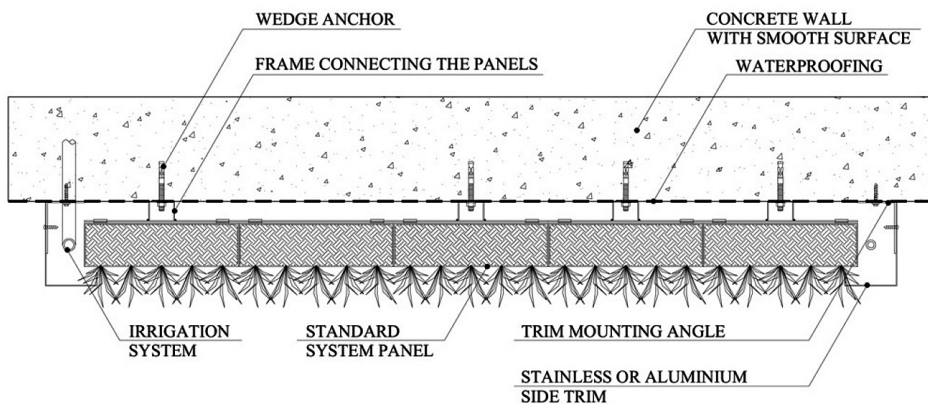
<sup>4</sup> *Ibidem*, 18-24.

<sup>5</sup> K. Łakomy, W. Bobek, *Nowoczesne systemy konstrukcji pod pnącza – technologie, rozwiązania i problemy projektowe, dobór roślinności*, Czasopismo Techniczne, z. 2-A2/2011, Kraków, 135-144.

Pergolas are the most popular of these. Pergolas are constructed with two vertical columns connected with cross-beams. These can be made of wood, steel or other materials. Trellises are older constructions consisting of posts supporting one or two beams. A lattice or interwoven pieces of steel or natural materials can be attached between the posts, enabling the growth of climbing plants. Wall constructions may be made from different materials and can have different shapes and sizes. For smaller climbers, nets or lattices are used as wall constructions, while for bigger climbing plants, walls constructions are made from metal or mixed supports. The supporting elements should be fixed at a distance from the walls. This allows climbing plants to freely wind themselves around the construction<sup>6</sup>. Climbing plants can be planted in flower-pots or other containers as well as in the ground. Plants planted in the ground are usually thicker and their roots are less exposed to frost.

### 3. Modular systems

Modular system solutions can be applied on every surface and in every climate. They are very resistant to strong winds and rain. Illustrations 1 and 2 present the construction of such systems.

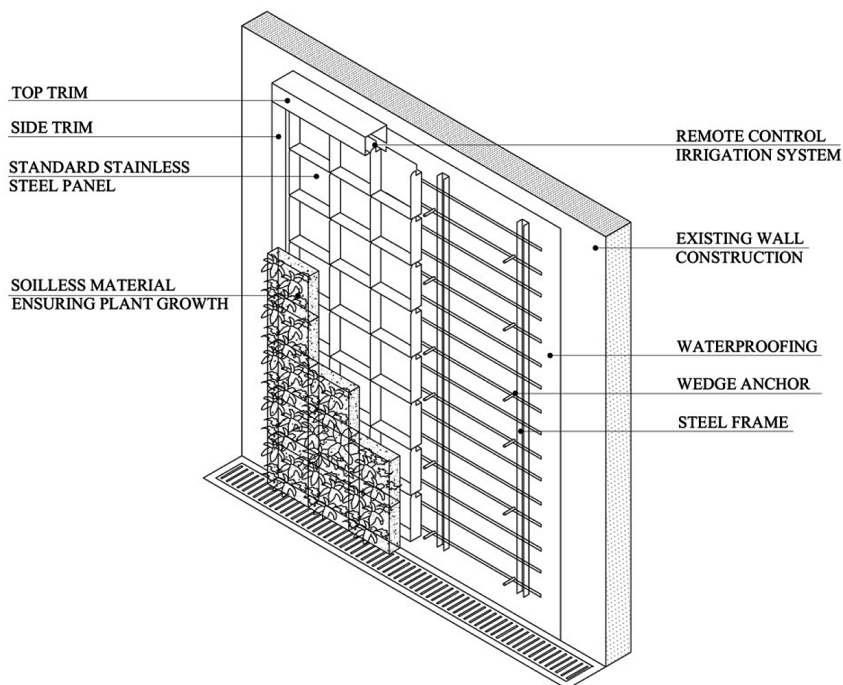


Ill. 1. A modular green wall horizontal section (source: <http://gsky.com/green-walls/pro/>, access: 12.11.2012)

This system consists of five basic parts:

- panels made from stainless steel,
- soilless material ensuring plant growth,
- plants specially cultivated to be resistant to the effects of atmospheric factors,
- a computerized vertical irrigation system with temperature and moisture sensors,
- wall frame assembly (the frame can be made from wood or stainless steel).

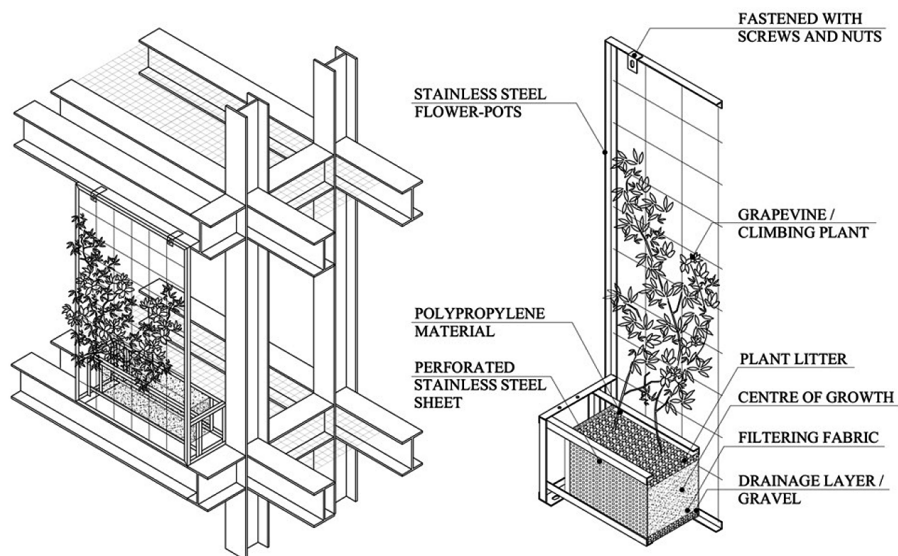
<sup>6</sup> J. Borowski, P. Lachota, *Zastosowanie roślin pnących i okrywkowych*, Warszawa 2004, 65-78.



Ill. 2. A modular green façade solution (source: <http://gsky.com/green-walls/pro/>, access: 12.11.2012)

#### 4. Green wall systems with flower-pots

In cases where the size of the building is not determined by the size of the plot, a solution increasing the size of its dimensions can be applied on building elevations. A special system is constructed alongside the walls and is fixed to the building construction. Flower-pots are placed on this system and secured by bars. This system is usually made using post and lintel stainless steel technology. It can be at a small or large distance from the building with technical platforms used for the purpose of plant growth control and conservation. In this case, an automatic irrigation system ensures good plant growth. Water is transported to the flower-pots through small pipes made from plastic. Additional heating cables are equipped with temperature sensors which prevent the plants from freezing. Illustration 3 presents a steel grid wall with pots.

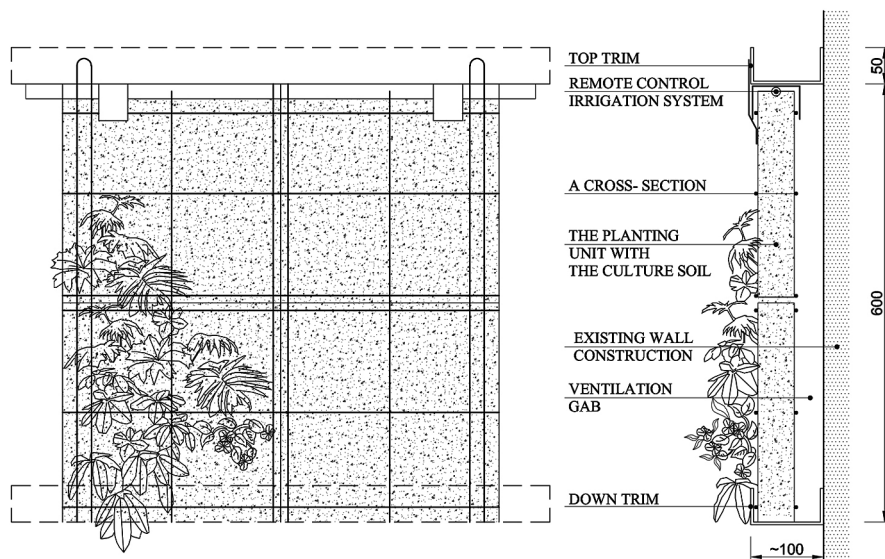


Ill. 3. Solution based on a steel grid wall with pots and a technology platform from gSky Plant Systems Inc. (source: <http://gsky.com/green-walls/basic/>, access: 12.11.2012)

## 5. 'Living wall'

'Living walls' are a more advanced technology in which the plant roots' ability to grow across flat surfaces is used. This can be done in various ways. These constructions differ to those technologies mentioned above because constructive elements are used to a much lesser extent. Plants are planted in special containers and are appropriately suited to the climatic conditions provided with access to light. During their growth, the plants become rooted in system inserts similar to garden foam. These inserts are attached in carrying frames fixed to the construction. Irrigation devices and heating cables can be used in this situation. This is a very flexible system due to its light weight and capacity to make the entire surface green<sup>7</sup>. An example of a 'living wall' is the Parabienta Living Wall System. The system is designed by the Japanese company, the Shimizu Corporation. The solution combines panel type planting units to form a wall. Culture soil forms the base of the planting unit which is fixed with mounting rails. The units are additionally strengthened vertically. The planting units are suspended on bands. Various kinds of plants can grow on this construction depending on plant life conditions they require. The planting units can be easily moved or exchanged during its construction or conservation. This solution is presented in Ill. 4.

<sup>7</sup> K. Barnaś, *Elewacje zielone – nowoczesne technologie w projektowaniu i wykonawstwie*, Czasopismo Techniczne, z. 2-A1/2011, Kraków, 10-11.



Ill. 4. Parabienta's Living Wall System by the Shimizu Corporation  
(source: own elaboration)

## 6. Patrick Blanc's technology

On the basis of many years of studies and numerous travels to tropical rainforests, Patrick Blanc described the most simple solution in his patent entitled 'Design for growing plants without soil on a vertical surface'. In this document, he presented a structure consisting of a vertical surface covered with felt, which is a substitute for soil and retains water. The whole structure consists of a framework from a vertical PVC sheet additionally covered in polypropylene foil. Two layers of felt are attached with the aid of fasteners. The plants require access to light, carbon dioxide and mineral-enriched water. The construction possesses an automatic plant water moisturizing system regulated by a moisture meter.

The roots develop not in a capacitive but on a flat surface, unlike many other soilless cultivation systems where the roots grow inside a capacity filled with certain substances (for example peat, mineral cotton, coconut fibre, or polystyrene mixtures). The weight of the whole vertical installation is very significant. Thinner materials like felt are not deformed by changes of temperature. Micro-fissures between fibres can expand in freezing conditions without changes to its general structure. This is because fibres are nonstructural woven materials. The durability of the material is strengthened with polypropylene foil placed between the fabric and PVC sheets.

Felt does not decompose because it is made of acrylic fibres. Of all the elements of the vertical garden, only felt has an influence on the plants' biology. In its fibres, the roots can grow and become rooted, and absorb water and nutrients. In reality, this fabric can

be compared to a thin layer of algae and moss growing on rocks and tree trunks. Different species of plants in the vertical garden grow into the fabric just like they would grow into beds of moss on a rocky surface. In order to facilitate plant installation, the fabric consists of two layers fixed (with stainless steel fasteners) to a durable PVC construction with a layer of polyurethane foil. In the first layer, vertical openings 5 cm to 10 cm wide are cut, depending on the dimensions of the plants. Soil is removed from the plants and their roots are placed between both layers.

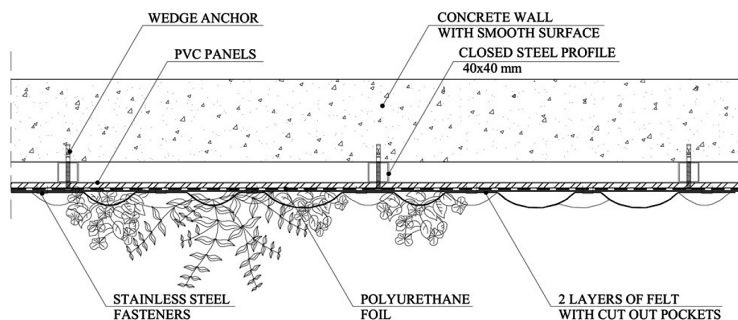
Initially, fibres and steel fasteners hold the plant. Later the roots start to grow in all directions. The roots grow into the fabric and entwine around the fasteners. Thanks to this process, the plant is able to hold itself. Some of the shrubs' roots can be as much as several metres long. The completely open structure is only limited by its dimensions. This enables the shrubs and small plants to coexist, because the fabric is able to evenly distribute water and nutrients in its entire surface. The entire exchange between plant roots, water and air occurs in the irrigation fabric. In the fabric, an interaction occurs between microorganisms and plants, this enables the roots to absorb more water and mineral salts.

Microorganisms interacting with the roots can convert toxins (such as pesticides, different organic mixtures and volatile organic compounds) emitted by industry, vehicles and the biological activity of humans and animals into less harmful substances. City dust is an additional impurity. Electrostatic forces keep this dust on the surface of leaves. In vertical gardens, dust washed out by rain, gathers in the felt. There, it is decomposed by microorganisms into substances which the plant can absorb. This irrigation fabric becomes a certain type of ecosystem in which different biological processes occur. It is irrigated by a plastic tube made of low density polyurethane which makes it more resistant to deformations caused by water freezing. This tube is arranged horizontally and has 2 millimetre openings placed every 10 cm. Water is supplied to the plants at an appropriate pressure, 3–5 times a day, depending on the time of year. Each irrigation lasts from 1 to 3 minutes. To maintain mineral balance in the root systems, a fertilizer is applied which is much more diluted than that used in farming or gardening. If rain-water is used for irrigation, the density is even lower due to the fact that such water contains calcium carbonate which partly prevents the absorption of useful ions. Depending on exposure to the wind and sun, time of year and if water retention is used, a vertical garden requires a daily amount of 0.5 to 5 litres of water per metre squared.

A vertical garden must have its own construction. This structure consists of a stiff, water-resistant, non-toxic material. Blanc initially used wooden panels, attempting to recreate tree trunks that exist in the natural environment. With regular irrigation, they lasted 3–5 years. He then started to use PVC, which turned out to be ideal. With 10 mm long fasteners, the wooden panels are able to withstand a weight of 100 kg/cm<sup>2</sup>. A stiff PVC panel can be directly attached to a wall supporting a vertical garden. Circulation of air between the wall and the PVC panel is, however, recommended. One of the various solutions to this is a framed construction made of metal pipes (aluminum, galvanized or stainless steel) which is attached to the wall. This construction has a rectangular grid built from pipes with square cross-sections, each 4 cm long. The connected pipes form a grid of dimensions 60 × 60 cm. Sometimes, constructors prefer to install vertical pipes with horizontal bars attached to where the PVC panels abut. The panels are riveted to the metal pipes. Silicon is used to seal

pipe connections and protect them from water. The weight of the vertical garden is quite low. 10 millimetre PVC panels weigh 7 kg per m<sup>2</sup>. One must add 3–5 kg/m<sup>2</sup> for irrigating fabric, depending on how much water it contains, and 1 to 5 kg/m<sup>2</sup> for the plants (depending on the species). This gives an average of 15 kg/m<sup>2</sup> for a structure enabling the growth and long-term stability of the plants. The whole construction together with the metal frame may weigh from 20 to 50 kg/m<sup>2</sup>. Patrick Blanc's green wall solution is shown in Ill. 5. Plants together with irrigating material, a 1 cm panel and a 4 cm gap created by the metal frame, constitute a solid insulation from the cold in winter and the heat in summer. The vertical garden may serve as part of a renovated old and abandoned building, giving insulation, visual comfort and better air quality.

Patrick Blanc uses several criteria in order to plan the sequence, arrangement and selection of plant species used for each project. The most important criteria being geographical location, latitude, and the direction of light towards which the garden is exposed<sup>8</sup>. In turn, as far as internal gardens are concerned, the same climate can be ensured in every location. A comfortable temperature for humans is around 20 degrees Celsius. This is comparable with the temperature of forest undergrowth (a layer in the ecosystem consisting of bushes) in tropical forests at a height of 600 cm to 800 cm. The case is similar with the amount of available light possibly achieved in closed spaces (1,500 to 2,000 lx, which is 1.5% to 2% of full sunlight). Relative humidity amounts to around 50%, whereas in the tropical forest undergrowth, it ranges between 85% and 95%. Low humidity is unfavourable for plants since it exposes the plant to dryness. A vertical garden has its own micro-climate in relation to the surrounding level of humidity. The fact that the irrigating fabric is constantly moist, and that plants release water back outside, improves the conditions of growth for the whole garden and enables more delicate plants to be cultivated which would not survive in ordinary flower-pots.



Ill. 5. Patrick Blanc's green wall solution (source: own elaboration based on Patrick Blanc's book *The Vertical Garden. From Nature to the City*)

All the selected species in each project are arranged in a particular sequence. This is selected depending on the climatic conditions occurring in different parts of the vertical garden, and also on the rate of growth and the aesthetic and structural aspects of each

<sup>8</sup> P. Jodidio, *Landscape. Architecture Now!*, TASCHEN, 76-81.



species. As far as external gardens are concerned, Blanc attempts to recreate the plant strata occurring on cliffs. This means that plants are fully exposed to wind and sun at the top, and at the bottom, the rock base which is partly embedded in undergrowth (a layer of bushes) and protected from wind and big changes in humidity and temperature. In internal gardens, Patrick Blanc prefers to plan the strata which occurs in forest canopies. An appropriate combination of species in a vertical garden is an important factor contributing to the general impression of the whole garden. The combination must result from an understanding of how the plants evolved. A garden must look to be thriving already several weeks after installation and should grow and create the same impression for many years. The plants planted next to each other should grow at a similar rate in order to avoid competition for space and subsequent overcrowding. Plants in high gardens must be able to withstand strong winds, large fluctuations in temperature and the drying out of irrigation material between watering. To achieve a harmonious plant combination, one must take into consideration the spatial characteristics of each plant, the way it branches out, where and how its roots naturally grow, leaf density, dimension, size, texture and colour of leaves, and how they absorb and reflect light. Plants are arranged on the basis of their ecological, structural and chromatic characteristics, giving each vertical garden a unique identity which changes over time.

Vertical gardens must be nurtured because they are a collection of living organisms. An efficient system of irrigation should be constantly ensured for at least several days, especially in summer. If need arises, additional light should be given. Technical maintenance of the garden involves several annual inspections, usually once every three months for external gardens and two for internal ones. Some species require little special care. Species with well-developed shoots, such as shrubs, need to be trimmed with garden shears to prevent them from branching out too much. The branches of shrubs should be no longer than 2 metres to minimize the movement of the plants' centre of gravity in relation to their supporting vertical garden<sup>9</sup>.

## 7. The properties of green walls

Vertical gardens play an important role in cities and possess certain functions:

- a psychological function – based on strengthening the relationship between humans and nature,
- an aesthetic function – improving the aesthetic attributes of the building and integrating it with the environment,
- an ecological function – leading to the improvement of air parameters and the micro-climate,
- a technical function – protecting against wind, sun, dust and performing the role of acoustic, thermal and water insulation<sup>10</sup>.
- an ecological function.

<sup>9</sup> P. Blanc, *The Vertical Garden. From Nature to the City. Revised and Updated*, London–New York 2012, 97-103.

<sup>10</sup> W. Celadyn, *Architektura a systemy roślinne. Studium relacji między elementami architektonicznymi a roślinnymi*, Kraków 1992, 16-18.

All methods of constructing green elevations have their pros and cons. Climbing plants do not require a lot of planting space. The roots of climbers growing in close proximity to the building collect water from the ground and dry out the foundations. The area of greenery protects plaster from rainwater damage. Plants do not heat up as fast as other elements of the building during sunlight. Thermal insulation results from the high content of water in plants (about 90%). The green wall significantly influences the temperature inside the building. In summer, it protects the building from direct sunlight and excessive heat, whereas in winter, it allows direct sunlight to shine through<sup>11</sup>. Plants decrease the loss of heat thanks to a layer of stagnant air created between the plant layer and the other element. Air-purification is another advantage – the leaves trap particles of dust and other harmful substances, the entire residue is washed down into the soil by rainwater. Climbers also improve the acoustic insulation of the building. The level of noise suppression mostly depends on leaf density. Apart from the numerous advantages of climbers, there are also disadvantages. Above all, it is the time it takes for the entire wall to become green- in comparison to new vertical garden technology, it takes much longer. Climbers also require appropriately designed, durable supporting constructions on which they can grow.

In the module solutions, the elevations become green quite quickly and evenly. Such solutions, however, cause other problems, like e.g. maintaining irrigation installations and supplying nutrients. All these solutions limit the possibility to renovate the walls. Depending on the walls' technical condition, plants may or may not damage them. Therefore, the walls should be renovated before. Nonetheless the plants blossom, change their leaf colour, and have a positive influence on the mind and body. The buildings become more natural and human-friendly.

Within the scope of research, scientists from the University of Siena and Vienna conducted an assessment of green wall energy consumption. The aim of the study was to evaluate the environmental cost as well as the cost of creating a green wall from plant cultivation to constructing structural elements to green wall conservation. Another objective of the study was to determine the benefits of green walls for the environment. All calculations were made on a hypothetical building with a volume of 1,000 m<sup>3</sup> and a facade with an area of 98 m<sup>2</sup> facing South. The results showed that in specific conditions, such as: a Mediterranean climate and a south-facing facade, green wall technology can indeed save energy, mainly by cooling the building and providing air circulation. Furthermore, results showed that when considering energy, the same amount of energy required to construct a green wall is saved by the building over a 25-year period<sup>12</sup>. Additionally, green walls have other environmental advantages, namely:

- a change in local microclimate,
- local temperature reduction,
- air quality improvement and pollution decrease,

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<sup>11</sup> I. Małuszyńska, W.A. Caballero-Frączkowski, M.J. Małuszyński, *Zielone dachy i zielone ściany jako rozwiązania poprawiające zdrowie środowiskowe terenów miejskich*, Inżynieria Ekologiczna, nr 36, 2014, 40-52.

<sup>12</sup> R.M. Pulselli, *Emergy based evaluation of environmental performances of Living Wall and Grass Wall systems*, Energy and Buildings, 73, 2014, 200-211.

- acoustic insulation,
- biodiversity,
- enhancement of the aesthetic conditions of the landscape,
- building protection against rain, hail and UV rays.

Another important aspect of green walls is their economic benefit, mainly associated with thermal insulation. In the summertime, plants shade walls and they cool buildings due to the presence of water vapour. In turn, this leads to a decrease in wall temperature and a reduction in building overheating. It is most advantageous for green walls to face south as plants are then in the sunlight most of the day. In the winter, green walls ensure thermal insulation, maintaining a protective barrier between the floor and the wall, thus decreasing wall convection.

## 8. Summary

Green facades, used for centuries to make residential palaces more beautiful, have been introduced into urban areas in the 20<sup>th</sup> and 21<sup>st</sup> centuries. This is the result of new technology. They are currently being designed not only for commercial, but also residential purposes. Vertical gardens are proof that cold, bare walls can give many species of plants the opportunity to grow. City walls can become mini-botanical gardens. Each wall can display the flora typical of a given region. The appropriate selection of plants can give many different species the possibility to grow together in a small area. This can be done by taking into consideration plant growth surfaces, which prevents competition for space.

Climbing plants and walls are most frequently seen based on framed constructions with flower-pots. This is due to their technological simplicity and relatively low costs. In comparison with the most expensive technology, for example, Patrick Blanc's vertical gardens, climbing plants growing out of flower-pots and winding themselves around frameworks fixed to walls are a remarkably simple solution. Many advantages originate from this simplicity. Their maintenance is low-cost. It is limited to regular watering of plants and seasonal pruning of branches. Secondly, climbers do not occupy much space. Moreover, a construction consisting of lines, nets and supports is not required in many cases. This is the case with stone walls, bricks and durable plaster. This significantly simplifies the process of constructing vertical gardens, as certain climbing plants are able to cling onto vertical surfaces. The lack of necessity to build an additional carrying construction significantly lowers the cost of the entire enterprise.

The second group of solutions comprises systems that use complicated constructions. These include the module constructions mentioned earlier and Blanc's technology. These systems enable the use of those plants which would not be able to grow on vertical surfaces. These are still rarely found in Polish conditions, but constitute an interesting alternative to the traditionally used climbing plants. The possibility of using such species is associated with higher costs due to complicated constructions and the process of cultivation which requires access to plants on ladders and not only at ground level as in the case of climbers. The best or at least most original visual effects are achieved with expensive and complicated vertical garden solutions.

All types of green wall described in the previous chapters differ from each other when it comes to construction and price. The cheapest solution is to plant climbers. The next low-cost solution is a green wall system with flower-pots followed by modular systems together with ‘living walls’ and Patrick Blanc’s technology. It is, however, impossible to compare the maintenance cost of each type of solution, as each has specific requirements. Basic conservation entails: trimming plants; removing old leaves; exchanging wilted and diseased plants; irrigation system inspection; construction inspection to eliminate corrosion. Other essential maintenance work includes the conservation of irrigation, fertilisation and lighting systems- such work is done at height. In autumn 2013, on the corner of 83 de la Rue d’Aboukir in Paris, a new Patrick Blanc wall was revealed. Its total area equals 250 m<sup>2</sup> and includes over 256 different plant species. The undertaking cost 175,000 USD, 700 USD per square metre, not including labour costs<sup>13</sup>. It is a high price to pay, however, turning an empty wall into a forest is priceless.

Today, when over half of the world’s population lives in cities, we must show that nature can find a place for itself in urbanised environments. Its inclusion would teach city dwellers to be more sensitive towards protecting what is left of the natural environment. It may well be that with the increasing use of green walls in our country, more expensive and effective methods, such as Patrick Blanc’s technology, will be applied.

## References

- [1] Barnaś K., *Elewacje zielone – nowoczesne technologie w projektowaniu i wykonawstwie*, Czasopismo Techniczne, z. 2-A2/2011, Kraków, 7-13.
- [2] Bauman R., *Domy w zieleni*, Arkady, Warszawa 1991.
- [3] Blanc P., *The Vertical Garden. From Nature to the City. Revised and Updated*, Wydawnictwo W.W. Norton & Company, London–New York 2012.
- [4] Borowski J., Lachota P., *Zastosowanie roślin pnących i okrywkowych*, Wydawnictwo SGGW, Warszawa 2004.
- [5] Celadyn W., *Architektura a systemy roślinne. Studium relacji między elementami architektonicznymi a roślinnymi*, Wydawnictwo Politechniki Krakowskiej, Kraków 1992.
- [6] Hohenadel K., *Replanting the World’s Concrete Jungles*, One Wall at a Time (source:[http://www.slate.com/blogs/the\\_eye/2013/09/18/patrick\\_blanc\\_s\\_newest\\_vertical\\_garden\\_greening\\_urban\\_walls\\_around\\_the\\_world.html](http://www.slate.com/blogs/the_eye/2013/09/18/patrick_blanc_s_newest_vertical_garden_greening_urban_walls_around_the_world.html), access: 11.10.2014).
- [7] Jodidio P., *Landscape. Architecture Now!*, TASCHEN, 76-81.
- [8] Kosiński W., *Pionowe ogrody – idea, technologia i estetyka na nowy wiek*, Czasopismo Techniczne, z. 2-A2/2011, Kraków, 105-125.
- [9] Łakomy K., Bobek W., *Nowoczesne systemy konstrukcji pod pnącza – technologie, rozwiązania i problemy projektowe, dobór roślinności*, Czasopismo Techniczne, z. 2-A2/2011, Kraków, 135-144.
- [10] Malec T., *Ogrody wertykalne w przestrzeni polskich miast*, Czasopismo Techniczne, z. 6-A/2012, Kraków, 299-305.

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<sup>13</sup> K. Hohenadel, *Replanting the World’s Concrete Jungles*, One Wall at a Time.

- [11] Małuszyńska I., Caballero-Frączkowski W.A., Małuszyński M.J., *Zielone dachy i zielone ściany jako rozwiązania poprawiające zdrowie środowiskowe terenów miejskich*, Inżynieria Ekologiczna, nr 36, 2014, 40-52.
- [12] Pulselli R.M., Pulselli F.M., Mazzali U., Peron F., Bastianomi S., *Energy based evaluation of environmental performances of Living Wall and Grass Wall systems*, Energy and Buildings, 73, 2014, 200-211.

ZBIGNIEW KONOPACKI-MACIUK\*

## TRAMS AS TOOLS OF URBAN TRANSFORMATION IN FRENCH CITIES

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### TRAMWAJ JAKO NARZĘDZIE TRANSFORMACJI URBANISTYCZNEJ W MIASTACH FRANCUSKICH

#### Abstract

After the almost total disappearance of trams in the first half of the 20<sup>th</sup> century, a rapid growth of tram networks has been observed in French cities since 1985. Initially, trams were perceived only as a means of public transportation, however, they gradually became an important urban tool and a catalyst for the thorough restructuring of public spaces. At present, tram lines in France are a symbol of a modern approach and an expression of pro-environmental ambitions of French cities.

*Keywords: city, urban, tram, public transportation*

#### Streszczenie

Po prawie całkowitej likwidacji tramwajów w pierwszej połowie XX w. od roku 1985 nastąpił gwałtowny rozwój sieci tramwajowych w miastach francuskich. Początkowo tramwaj traktowany był jedynie jako środek komunikacji miejskiej, stopniowo jednak stał się ważnym narzędziem urbanistycznym oraz katalizatorem powodującym gruntowną restrukturyzację przestrzeni publicznych. Obecnie linie tramwajowe we Francji są symbolem nowoczesności oraz wyrazem proekologicznych dążeń miast francuskich.

*Słowa kluczowe: miasto, urbanistyka, tramwaj, komunikacja miejska*

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## 1. Introduction

*The appearance of the tram in the city was like a revolution, (...) it became synonymous with important transformations in the habits of the residents of the city and its suburbs and it enhanced the value of urban space* [2, p. 165].

After the almost total disappearance of trams in the previous century, one can effectively talk about the French phenomenon of tram line restoration in the last 25 years. The number of French cities dynamically investing in tram lines over this period has been unique in Europe. What is characteristic about French investments connected with the implantation of tram lines is the comprehensive and many-sided approach to the city structure. Route-planning decisions are primarily determined by the transportation needs of cities and metropolitan areas, however, they provide a stimulus to reconstruct not only the city infrastructure, but to introduce a new approach to the management of the local public spaces on the whole. The development of tram networks is consistent with a double trend connected with mobility. Firstly, there is an evidently growing demand for further means of transportation resulting from an increase in social mobility and from the dynamic development of cities. Secondly, there is a need for a counterbalance and an alternative to excessive car usage.

Within the transformation of cities that were very industry based into post-industrial cities, there are changes to dedicated mass transportation spaces in France and there is a visible departure from the model of separated functions towards multi-functional spaces available for everybody, especially for people with disabilities. Decentralisation and competition between cities both in France and across Europe, and the evolution of urban doctrines has forced public transportation to be treated as high-standard, multi-functional urban space [15, p. 96].

Early in the life of industrial cities, the tram was a tool which enabled the introduction of some distance between working-class districts located on the industrial fringes of the city and the rich, central, downtown districts [3, p. 20]. However, nowadays it is becoming the means of connecting the mono-functional housing districts with city centres, which tend to be more service and office orientated.

## 2. History of Tram Line Development in French Cities

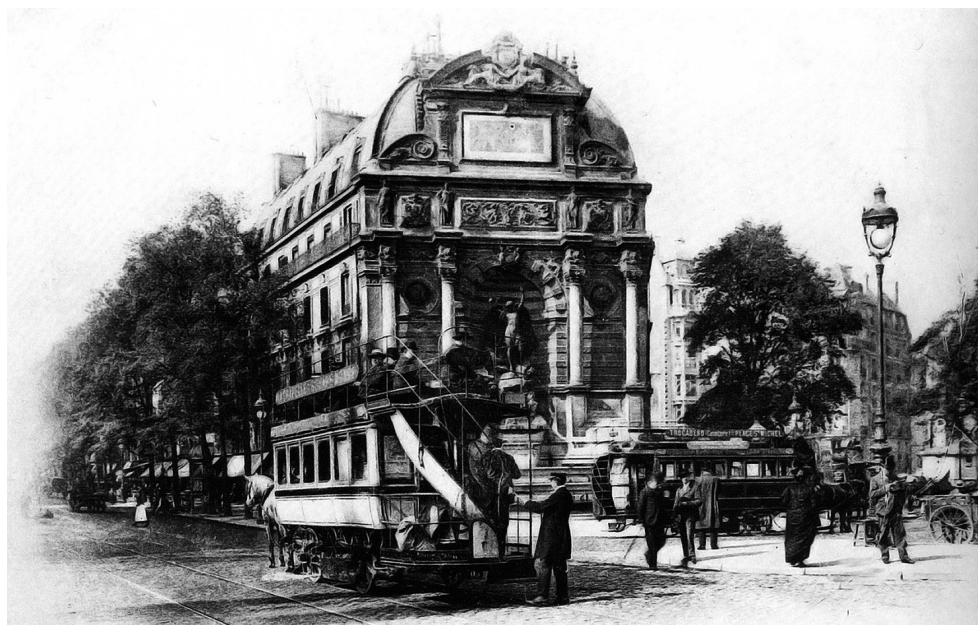
The first commercial tram line in France was opened in Paris, in September 1855, under the then Prefect of the Department of Seine, Georges Eugène Haussmann. It was created by French engineer Alphonse Loubat, the design engineer of the New York tram line (1832). The 'Iron American Rail', as the tram was called in France at the time, gradually started to replace omnibus lines in Paris and in other French cities.

At the beginning, they were horse-drawn<sup>1</sup>, and later, steam-engine trams were introduced. There were also attempts to use trams powered by compressed air. The first line of this type was launched in Nantes in February 1879.

Nantes is a pioneering city with regard to urban transportation. It was here where the first omnibus in the world was introduced for the employees of the shipowner Stanislas Badura.

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<sup>1</sup> Approximately 140 horses were required to operate just one line in Paris.



Ill. 1. Horsebus on *Place Saint-Michel* in Paris, early 20<sup>th</sup> century. Source [19] *Le tramway à Paris et en Il-de-France*

In the early 20<sup>th</sup> century, Nantes boasted a 39 km tram line transporting 11 million passengers per year [17, p. 101].

The next stage of transformation for tram lines was the transition to the more efficient electric drive. By 1914, all the lines in the Paris region were electrified, however, they could not use overhead lines in the city centre due to aesthetic reasons, thus, they had to be powered by batteries.

Tram system development in France was very dynamic until the interwar period. The year 1925 was the peak of development with 122 lines of a total length of 1,111 km in the Paris region – these transported 720 million passengers that year alone [18, p. 39]. The cities swarmed with horse carriages, steam and electric trams, pedestrians and the first cars. Public space was common ground and it was equally divided between all its users [8, p. 118].

Gradually, trams started to be replaced by cars – the symbols of progress and modern technology. *Trams became solely responsible for numerous traffic jams and accidents* [18, p. 43]. From the end of World War II, individual cities began disassembling their tram lines, considering them unadjusted to modern cities and interfering with car traffic. By 1950s, only 3 tram lines had remained in Lille, Marseille and Sante-Etienne out of the total of 48 [10, p. 2] tram lines in France. Bus transportation, significantly less expensive as far as infrastructure is concerned, became the alternative for tram mass transportation.

By the end of the 1940s and in the 1950s, public transportation was not a priority for public authorities, who considered individual car transportation as the main source





Ill. 2. Tram on busy streets of *des Halles* district in Paris, 1920. Source [21]  
*Le tramway à Paris et en Il-de-France*

of mobility. Old, deteriorated, slow and rusty trams on worn out tracks, often with bad route planning, lost their value in the eyes of society, while the new buses and trolleybuses appeared as the embodiment of progress. Urbanisation based on highways penetrating the cities, expressways, and traffic lanes stretching along river banks contributed to more extensive use of cars. Space for public transport, bicycles and pedestrian traffic was reduced as car traffic and the demand for parking space grew significantly [8, p. 79].

Prioritised car and road infrastructure were the only support for enormously expanding metropolitan areas until the 1980s [8, p. 63] (in 1971, only Paris had an underground train system and the first section of RER line).

The fuel crisis of the 1970s as well as an excessive number of cars blocking the cities became the negative catalysts for a new approach to mass transportation. At the same time, people started to notice environmental protection problems. The first critical opinions on the *tout-automobile* dogma (everything by car) began to be voiced. The drawbacks of excessive car traffic became evident: traffic jams; noise; pollution; occupancy of physical space; energy consumption [17, p. 102].

Due to the above reasons, trams once again became objects of interest as an alternative to the excessive reliance upon motor transportation. In Nantes in 1985, in Grenoble in 1987, and in Strasbourg in 1995, trams were reintroduced as environmentally-friendly, reliable and comfortable means of city transportation – in Grenoble, this included the first tram designed specifically with access for the disabled in mind. Gradually, they were joined by other



III. 3. In 1985, the first modern tram line was launched in Nantes. Photo by the author

cities, e.g. Rouen, Montpellier, Lyon. Some cities, like Bordeaux, abandoned plans for an underground system in favour of a tram network as a less expensive solution that was better adjusted to the city scale. In the Paris metropolitan area, the first tram line was launched in 1992, and in the city of Paris, in 2006.

### 3. Tram Renaissance in France

In the 20<sup>th</sup> century, characterised by social and individual acceleration, the idea was to build extensively in France, very quickly and wherever possible. A lot of products, buildings, new suburban areas, as well as *non-lieux* (*non-places*)<sup>2</sup> were manufactured and constructed with record-breaking speed. Between 1945 and 1975, more housing units, public service buildings, factories and offices were constructed than in the previous centuries, to such an extent that eleven million out of the twenty million currently occupied flats in France were built after 1945 [4].

Car urban planning was characterised by plenty of car parks included in plans for housing, office and service development. Monumental urban projects, expansions of service or housing centres, as well as new cities built *ex nihilo* according to existent or non-existent programmes, regardless of whether they were connected with local centres or not, were engulfed by the cities and included in their borders. This led to a situation in which questions

<sup>2</sup> The term *non-lieux* introduced by Marc Augé, French ethnologist and cultural anthropologist (*Non-Lieux, introduction à une anthropologie de la surmodernité*), Le Seuil, 1992.

concerning their reason for existence, meaning and form began to be raised. Currently, the status of such areas is being changed from ‘non-urban’ to ‘city fragments’ [8, p. 79].

Cars also interfered with the already existing city structures, enforcing changes in the use of public spaces. Motor transport took over more and more of the available space leaving less and less of it to other users.

The modern tram has a role to play in this deformed city landscape as an effective tool for urban transformation.

### 3.1. Reasons for Success

There are many reasons for the success of the tram in France, and they can be divided into two main groups. The first group includes advantages mainly related to modern tram transportation. Factors resulting from French realities, French legal regulations, and specifically, spatial planning belong to the second group.

#### 3.1.1. Contemporary Tram Transportation

The first group includes the tram system’s transport capacity of ten to twenty thousand p/h (passengers per hour), which is significantly greater than that of passenger cars at 700–900 p/h, and also exceeds bus line transport capacity of 720 p/h, yet it is relatively lower than that of the underground at 20 to 40 thousand p/h [14, p. 156]. Despite the fact that the underground is more efficient as far as the number of transported passengers and the speed of transportation are concerned, the distances between its stations are greater and, therefore, it services smaller city areas rather than the city as a whole [13, p. 25]. It should also be pointed out that the cost of constructing a tram line is on average, four times lower than that of an underground line. In some situations, such as junctions with railway lines (e.g. in Rouen and Strasbourg) the tram traverses through subterranean sections, and such a solution is approximately seven times more expensive than maintaining the transport on the surface level. In order to ensure better accessibility, subterranean stops have to be serviced by lifts and escalators [14, p. 16].

The list below illustrates the profitability of building a tram line compared to other means of transportation. One billion EUR enables building:

- 8 km of underground line (Francois Mitterand – Madeleine section, line 14, Paris),
- 300 km of highway (A20, Verzon – Brive section),
- 30 km of Seine-Nord Europe channel with large cross-sections (between l’Oise–Compiègne and Dunkerque–Escaut–Cambrai channels),
- 35 km of tram line (Bordeaux),
- 96 km of high-speed railway – estimated cost, 54 km – real cost (TGV Est, section between Vaires-sur-Marne–Seine-et-Marne and Baudrecourt en Moselle),
- 8 km of basic tunnel (estimated cost on route from Lyon to Turin),
- new harbour in Le Havre as part of the Port 2000 project (2001–2006),
- purchasing 20 Airbus A320s [7, p. 13].

The tram is more efficient than the bus or trolleybus as far as the number of transported passengers is concerned. At the same time, its running costs are lower despite higher initial

infrastructure costs, especially in France, where 86.3% of electric energy is provided by nuclear power plants<sup>3</sup>.

It is an environmentally-friendly means of transportation in the traditional meaning with emissions of only 2.4 g CO<sub>2</sub> per one passenger per km in comparison to buses at 66.7 g, and cars at 173.7 g<sup>4</sup>. In France, 50% of car trips are shorter than 3 km, and transportation as a whole is the second biggest power-consuming sector of the economy. Transportation in cities and suburbs is responsible for 41% and 26% of CO<sub>2</sub> emissions respectively [9].

Modern trams are relatively quiet – they generate less than 65 dBA, and vibrations are reduced thanks to dilated platforms and flexible vibration absorbing materials. Constructing new tram lines is accompanied by new tree-planting and green track projects, e.g. in Strasbourg, Paris or Bordeaux.

Trams are also consistent with the policy of economical utilisation of space – one set of carriages transporting 244 people occupies 112 m<sup>2</sup>, replacing 177 cars occupying 1,600 m<sup>2</sup> [13, p. 55].

Environment protection is not the only advantage of tram transportation, it is also a user-friendly and highly comfortable means of transportation.

The floor level in modern tram-cars is below 30 cm above ground level<sup>5</sup>, thus similar to passenger cars. Due to raising tram stop levels to this very height, tram-cars are accessible without any steps or thresholds. Modern tram cars are accessible not only for people with disabilities, parents with baby carriages, the elderly and people travelling with luggage, but also the time taken to get in and out of tram-cars is reduced, which increases the transportation speed of trams [16, p. 6]. Systems of trams ‘enforcing’ green lights on junctions and tracks mostly separated from traffic ensure faster movement in the city centre, averaging at approximately 20 km/h, compared to cars (10–15 km/h). Connecting tram lines with railways (*Tram–Train*) eliminates the necessity to change means of transportation, thus reducing travel times. Tram lines planned today are included in the modal city transportation system, connected to P+R car parks, equipped with passenger information systems, monitoring systems and traffic management systems, and they are becoming a comfortable alternative to motor transportation.

New tram-cars can provide highly frequent services. The interval between services is often four minutes in rush hours (e.g. the Saint-Denis–Bobigny–Noisy line and in Bordeaux). In Grenoble, the rush-hour frequency of line A is three minutes. In Strasbourg and in Nantes, tram-cars in rush hour come every two minutes [16, p. 5]. Service frequency is adjusted to the number of passengers and it is often increased in downtown sections<sup>6</sup>. Modern tram-cars are highly comfortable and equipped with air conditioning, sometimes with Wi-Fi hotspots, and ergonomic seats.

Tram transportation meets the constantly rising mobility requirements to increasingly higher degrees. Thanks to good accessibility and short distances between stops, it is a perfect

<sup>3</sup> According to 2008 data from EDF (<http://energies.edf.com>).

<sup>4</sup> l’Agence de l’environnement et de la maîtrise de l’énergie (ADEME) quoted after [1, p. 21].

<sup>5</sup> In Alstom, *Citadis 301 model*.

<sup>6</sup> It is possible due to two-side tram-cars using simple N or X junctions in any track locations for reversing – without the necessity of using tram termini.



Ill. 4. Green track, and the ‘third’ power line, *Quai Richelieu* in Bordeaux. Photo by the author

connection between city areas, and, as one element of multi-modal systems, it fulfils the role of structuring urban space.

In pedestrian zones, from which car traffic was completely or nearly completely eliminated, the streets were revived and at the same time, access to space improved and increased [14, p. 16].

Today’s trams are becoming the symbol of a modern city, its openness and care for its inhabitants. They bring advantages in creating a positive image and raise competitiveness in comparison to other cities.

### 3.1.2. French Realities

Implementation of public transportation lines in the communication system modifies the way in which it is used. As public space, the street forms an ‘ecosystem’, similar to ecosystems in the natural environment. Every modification of a given parameter changes the status of the global balance of a whole given route. This balance is not limited only to the street space, it also includes the built area that delineates it and the districts in which it is located. The voice of inhabitants and their activities conducted in street frontages are significant in this process. Therefore the inhabitants’ opinions about the way the space is used, as well as their needs concerning public transportation, have to be taken into consideration (CERTU<sup>7</sup>) [5, p. 8].

<sup>7</sup> CERTU – *Centre d’Études, sur les réseaux, les transports, l’urbanisme et les constructions publiques*, Infrastructure, Transportation, Urban Planning and Public Investment Research Centre.

This approach is not merely the wish of urban planners working for *Ministère de l'Écologie, de l'Énergie, du Développement durable et de la Mer* (Ministry of Ecology, Energy, Sustained Development and Sea), but it is consistently implemented by means of appropriate legislation, developing planning tools and administrative structures. At the same time, extensive information policy, as well as social consultations contribute to better social reception of the introduced changes which are often substantial, take a long time to make and frequently cause much inconvenience<sup>8</sup>.

The reintroduction of the tram transportation system was accompanied by three main urban transformations:

- decentralisation, increasing importance of local communities, withdrawal of state authorities from territorial administration and transfer of competence to local governments;
- urban development and population covering extended metropolitan areas;
- urban renovation [12, p. 23] as a preferred type of actions taken by authorities [13, p. 6].

In France, the organisation of public transportation has been managed by decentralised local administration since the early 1980s. For over thirty years, local urban communities have had full autonomy in shaping their public transportation networks in the context of dominant car transportation [10, p. 1].

When speaking about the development of tram networks in France, one should emphasize the role of the legal and planning regulations that contributed to the success of implanting trams into the urban environment (SRU, LOTI, ScoT, PLU, PDU).

Thanks to the SRU Act (*Loi sur la Solidarité et le renouvellement Urban*, Act on Solidarity and Urban Renewal), tram transportation projects are consistent with other urban projects. Urban development is organised on the basis of public transportation axes. Its purpose is not only to ensure a balance between the need for mobility and environmental protection, but also to strengthen social and urban cohesion at the same time [10, p. 4].

The LOTI Act (*La loi d'orientation des transports intérieurs*, Act on Directing Internal Transportation) from 1982, introduced after the decentralisation of authority, assigned the competences of public transportation organisations to various local government levels. Additionally, it “guarantees all users the right to move and to free choice of means of transportation”. The global policy of “ensuring harmonic and complementary development of various types of individual and collective transportation” puts special emphasis on their pros and cons. Competition rules, economic and social costs and other variables have been quoted as reasons for this choice “Global policy, by supplementing the general domestic framework, enables the assumptions of a transport development model based on a multimodal approach”. The act postulates giving priority to collective transportation [13, p. 16].

SCoT (*Schémas de cohérence territoriaux*, Territorial Coherence Model) is aimed at integrating multi-directional activities conducted by a given territorial unit. The SCoT model is supposed to present the assumptions for management and sustained development necessary for defining the goals of urban policy regarding housing, economic development,

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<sup>8</sup> In France, it requires virtually 10 years to realise a proper tram line project from first analyses to launch.

recreation, the movement of people and goods, vehicle parking and the regulating of car traffic. Also to specifically determine the main guidelines for organising space, establishing the balance between its various types and evaluating the influence of this organisation on the environment, to define goals concerning the balance between urban planning and the development of public transportation services. The SCoT model may also define large projects relating to transportation services, specify the conditions for priority urban planning development of areas serviced by collective transportation, determine urban planning of undeveloped areas due to collective transport services and use of the developed areas that are already serviced.

POS plans (*Plan d'Occupation des sols*, Area Development Plan), recently replaced by PLU (*Plan Local d'Urbanisme*, Local Urban Plan), are required to be compatible with PDU (*Plans de déplacements urbains*, Urban Transportation Plan).

The LAURE Act (*Loi sur l'air et l'utilisation rationnelle de l'énergie*, Act on Air and Rational Energy Usage) from 1996 concerns the relations of PDU to the problems of environment protection. Since then, the purpose has been to decrease car traffic, and the PDU plan has become obligatory for all cities above 100,000 inhabitants. It has become the tool for programming and for public transportation policy, with its structure organised around trams, reforming the bus network, providing transport on demand, social tariffs, information systems and accessibility, *parcs-relais* (*Park and Ride*).

In order to help realise the tasks resulting from effective legislation, a special tax system (*Versement transport*) was introduced to maintain and develop public transportation.



Ill. 5. *Porte d'Aubervilliers* in Paris, present state and the designed extension of T3 line.

Source: materials from *Le tramway, l'exposition* exhibit, Pavillon de l'Arsenal in Paris, March 2009

The comprehensive approach to the problem of urban renewal makes the introduction of trams strongly influence changes to urban space. Not limited only to *laying* tracks, but starting with a radical replacement of the existing infrastructure, through rebuilding public spaces, often inciting revitalisation of adjacent architecture, the realisation of new accompanying objects, and ending with the restructuring of the districts that the tram passes through.

### 3.2. Present situation

Today, France has 240 networks of urban public transportation which service populations of between 10 thousand and 10 million inhabitants [10, p. 2]. French metropolitan areas with more than 200 thousand inhabitants are capable of building tram networks. It is possible that in the future, this threshold will be lowered, and cities with 150 thousand inhabitants will also be able to construct tram networks, as is the case in Germany [13, p. 9]. Out of thirty-nine French cities above 200,000 inhabitants, over thirty already have, are realising or are planning the construction of tram networks (Tab. 1). In most cases, it is a staged process, but there are cities like Bordeaux, which in a single effort, realised most of the network including 3 lines of 35 km in total. Currently, further works are being conducted to extend the existing lines and to build new lines.

Table 1

**Chronological list of realised tram lines in individual cities**

	<b>Year of launching first line</b>	<b>City</b>	<b>Number of inhabitants in metropolitan area</b>	<b>Comments</b>
1	Line existing before 1985	Marseille	1,350,000	
2	Line existing before 1985 (1881)	Saint-Étienne	290,000	
3	Line existing before 1985	Lille	1,001,000	2 lines, 23 km VAL 45 km
4	1985	Nantes	570,000	3 lines
6	1987	Grenoble	428,000	4 lines
7	1992	Paris metropolitan area	10,200,000	3 lines
8	1994	Rouen	399,000	METROBUS (31 stations, including 5 subterranean, 15.4 km)
9	1995	Strasbourg	441,000	5 lines
10	2000	Montpellier	288,000	2 lines
11	2001	Lyon	1,349,000	4 lines, underground
12	2000	Orléans	263,000	1 line, 17.9 km
13	2001	Nancy	331,000	1 line, 11 km
14	2001	Caen	199,000	1 line, wheel tram, 15.7 km
15	2002	Rennes	273,000	Metro VAL
16	2004	Bordeaux	754,000	3 lines, 35 km
17	2006	Valenciennes	357,000	1 line, 18.3 km



18	2006	Clermont-Ferrand	259,000	Wheel tram
19	2007	Nice	889,000	1 line, 8.7 km
20	2007	Le Mans	195,000	13.5 km
21	2009	Toulouse	761,000	VAL
22	2010	Mulhouse	235,000	2 lines, 12 km
23	2011	Angers	227,000	1 line, 12 km, including 400 m of single track
24	2011	Reims	216,000	Lines 1A and 1B: 11.2 km
25	2011–2013	Toulon	520,000	2 lines, 18.3 km
26	2012	Le Havre	182,000	
27	2013	Besançon		1 line, 14 km
28	2013	Brest	221,000	
29	2013	Dijon	237,000	2 lines, 10 km
30	2013	Tours	297,000	
31	2014 (?)	Lens-Liévin	250,000	2 lines, 37 km

Only ten years ago, the level of 300 thousand inhabitants was adopted in all the planning discussions as the threshold below which, a tram network could not be realised.

In the geographical respect, trams do not go beyond the central parts of metropolitan areas and their presence is not justified in low-density development. The radius



III. 6. Housing investments in the vicinity of T1 tram line, in *Clos* district, La Courneuve, Paris metropolitan area. Photo by the author

of the typical tram network is from 15 to 25 km from the town/city centre, while the interest in construction and investment areas goes far beyond 35 km radius to areas where the car is the only means of transportation.

For four of the million-inhabitant metropolises (Paris, Marseille, Lyon and Lille), to which Toulouse can be added, as it is going to reach 800,000 inhabitants in the near future, the tram system is complementing the underground system. The other metropolitan areas made tram systems their central tool of public transportation [13, p. 30].

#### 4. The Effect of the Tram on Urban Space of French Cities

A tram system influences the whole city structure. It directly and visibly joins the centre with the peripheries (*La Source* district in Orléans and *La Paillade* district in Montpellier). In peripheral areas of the city, it can be the structural element connecting public spaces [10, p. 5]. It is a visible element, linking important points in the city, not only by transportation connections, but also through regulating and composing the space it occupies. Thanks to the use of uniform materials and elements of small architecture, it creates a composition bond between diverse parts of the city. It becomes a tool enabling the constant and clear reading of city space for pedestrians as well as for travellers. In contrast to the underground, which connects the city in an abstract way, or to buses lost in car traffic, a tram system materializes in the city through its physical and symbolic presence [13, p. 56].

Trams introduce dynamics to the districts through which they pass. Tram investments are accompanied by projects of new development, rehabilitation and ZAC (*Zone d'Aménagement Concerté*, Appointed Investment Zone) and DSQ (*Développement Social de Quartier*, Social Development of Districts) urban projects.

A tram system, the initial task of which is to connect individual important points in a city, generates activity development as the next step, especially within a radius of 400 m from each stop.

Demographic changes, a growth in the number of people practising liberal professions, services and new residential housing developments are visible within tram corridors. For example, in some districts of Grenoble, which are serviced by tram, the size of working class and immigrant populations has diminished while middle class population has increased in number [16, p. 10].

Transportation within the districts is no longer pushed to the peripheries, but on the contrary, cars are reintroduced into the city fabric but on different principles and in a more orderly fashion. This is accompanied by new technologies, a new way of road development, promoting diversity of road users, improving connections with city fabric. As a result the car presence is becoming more acceptable [8, p. 39].

A new division of public space is taking place, with priority going to public transportation, pedestrians, bicycles, reduced car traffic and parking spaces. The space acquired in this way is given new functions. The first examples were the realised projects of the radical transformation of *Cours des cinquante otages* in Nantes, where eight traffic lanes were replaced by an esplanade with trees and a tram line, and only 2 lanes of motor traffic. Another example is *Boulevards* in Grenoble, which was transformed into a *30 zone* (an area

with a 30 km/h speed limit) where two-level crossings were eliminated and green areas were introduced [10, p. 4]. New space management with different modes of transport that combine the use of cars and public transportation improves the safety of pedestrians by limiting speed along collective transportation lines. In Grenoble, the construction of A line decreased the number of accident black spots.

Streets of a new type appear in the city, with important pedestrian places of much better quality. Intermodal connections are becoming standard practice: tram–bus, tram–car, tram–bicycle (as in Strasbourg), or tram–underground (as in *Saint-Denis* and *Bobigny* in the Paris metropolitan area) [16, p. 11].

Tram investments are accompanied by support for urban restructuring projects in tram corridors along its lines.

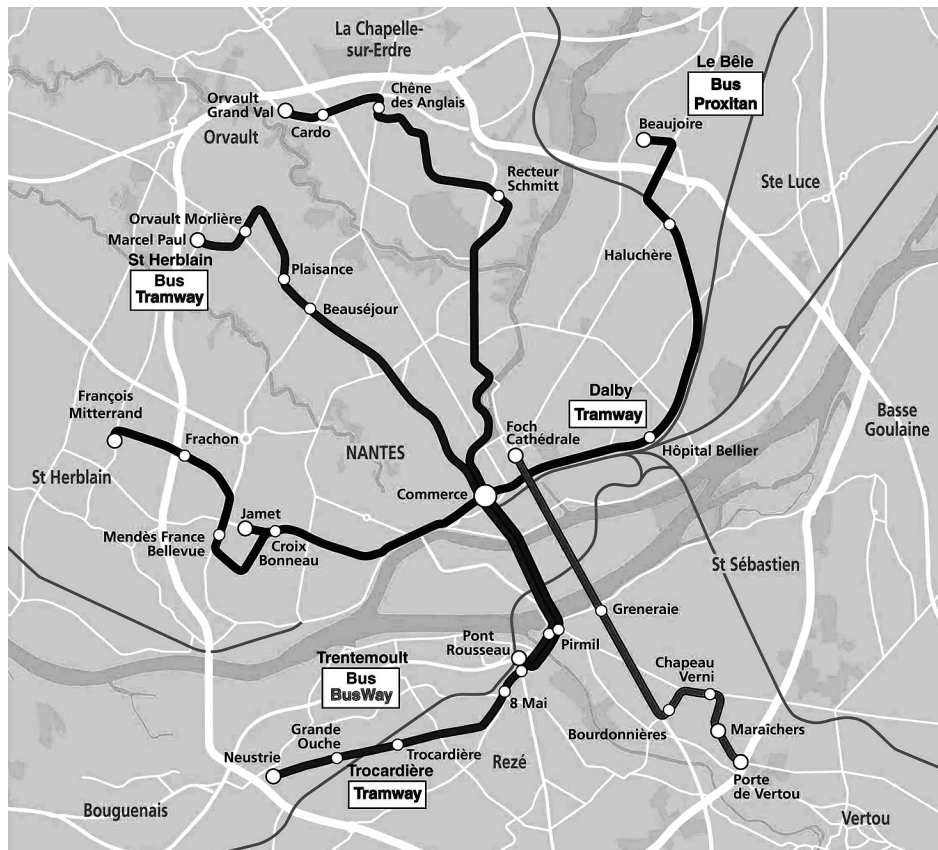
Issues of two metropolitan areas are presented below – Nantes, which was the first to launch a new tram system in 1985, and in which numerous urban planning operations were conducted along the construction of the first tram line, and Bordeaux, which realised three tram lines at the same time with major reconstruction of public spaces as a whole.

#### 4.1. The tram in the Nantes metropolitan area

The Nantes tram network of 36 km is the longest in France. It has become the main theme and symbol of the urban policy conducted by that metropolitan area. The tram has shown its influence on the city in respect of clear structure, improved aesthetics, urban renewal operations, comfort, and specifically in the area of ongoing changes of public spaces. On the basis of data from 1995, in parallel with lines 1 and 2, approximately 140,000 m<sup>2</sup> of pedestrian and bicycle spaces were realised, along with the accompanying infrastructure, as part of small district-related projects or projects of greater significance in the scale of the whole city or metropolitan area. The implementation of the tram system required rearranging space, which meant looking for a way to reduce the existing motor transportation. This was realised by installing a tram line and reducing the number of traffic lanes, as well as their width. Numerous traffic lights and traffic islands were eliminated, mini-roundabouts were introduced and junctions were simplified. The number of traffic lanes was reduced to two single lanes, and their width was decreased from 3.5 m to 2.8 m, which limited traffic speed, but paradoxically, improved the traffic flow. Motor traffic volume was also significantly reduced, as was its intensity near the city centre. Nantes gives the impression of a peaceful, less noisy city, with space for bicycles not only along tram lines. The implementation of a tram line freed up transportation routes through their new division and simplification. Pedestrians and bicycles discovered areas without the predominance of cars. The linear management of inherently urban spaces strengthened by their structure and small architecture, makes the whole space of transport corridors more consistent. The traffic flow within them becomes easier, more peaceful while the space is more user friendly and aesthetic.

The introduction of a tram system is an important urban event, and it is accompanied by public and private projects. At the metropolitan level, the whole tram line and network has become the beneficiary of added value. A total of eighty-five construction projects covering 450,000 m<sup>2</sup> of usable area were catalogued. They introduced significant changes into the way

of using public space (32 of them related to housing development, 48 were public utilities and 5 were office/commercial spaces). Apart from the above mentioned projects carried out within tram corridors, thirty-eight local projects related to public spaces (squares, bridges, quays etc.) could be regarded as directly connected to the introduction of the tram.



III. 7. Simplified diagram of the tram network in Nantes. Source: [www.tan.fr](http://www.tan.fr) (2/2010)

Whether significant or small, all the projects contribute to strengthening the downtown character of Nantes city centre and the districts linked by the tram line [13, p. 56].

#### 4.2. The tram in the Bordeaux metropolitan area – CUB (*Communauté urbaine de Bordeaux*)

Bordeaux, with 660,000 inhabitants and area of 55,000 ha is the seventh largest metropolitan area in France, as well as one of the city complexes with the lowest population density.

The Bordeaux tram project became a unique opportunity for the restructuring and modernisation of the city and metropolitan area, and for improving its image. It was no

longer just a transportation project, it became an urban project based on the realisation of three tram lines.

The project was supposed to address the following problems as defined in an urban diagnosis: pauperisation of the city centre, especially of the districts adjacent to Garonne; high levels of activity of the peripheral districts, draining activity from the city centre and post-industrial areas near the city centre; isolation of problematic social housing districts.

On a city-wide scale, the project had three goals: emphasising the architectural and urban legacy, especially the building development on the frontage of Garonne, designed by *l'atelier Gabriel*<sup>9</sup> (currently, Bordeaux city centre is on the UNESCO World Heritage List); revitalising three great post-industrial complexes, *3B*, *Bacalan* in the North, *Bercier* in the South of *St Jean* Railway Station, and *Bastide* on the right bank; connecting the city to the river by managing quays.

On a metropolitan scale, the project faced two challenges: activating the metropolitan area centre; qualitative control over the expanding suburbs.

Seven 'park and ride' car parks were realised as part of the project, the target number being fifteen, each of 5,000 parking spaces.

Aesthetics and care, visible in the work of architects, designers and landscape architects, are the most surprising aspects of the Bordeaux tram project. CUB (*Communauté Urbaine de Bordeaux* – Bordeaux Municipality) decided to entrust the project to talented authors: architects Brochet, Lajus et Pueyo, designer E. De Portzamparc, and landscape architects from *Signes* agency founded in 1990 by Alain Cousseran.

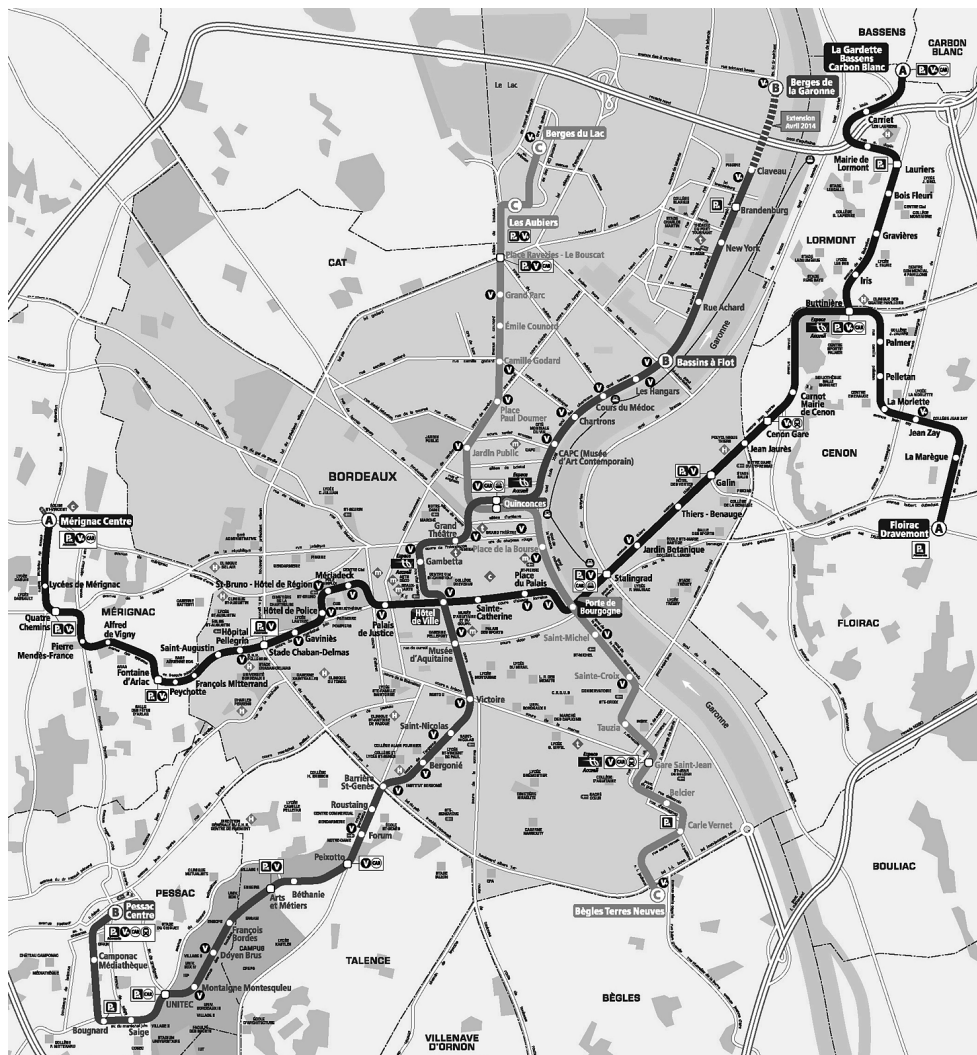
Every line and stop was designed with special care, and their vicinities were redesigned and restructured very thoroughly, restoring the quality of public spaces that was lost due to motor transportation and traffic infrastructure. The development of the Garonne quays, where wide green areas were introduced, emphasized the value of eighteenth-century frontages designed by Gabriel, which were cleared of two lanes of motor traffic. It is an exceptional example of great care for the urban landscape.

Outside the city centre, tram network is planned to spread radially to prevent parallel connections, e.g. with the tracts leading to the ring-road which services main industrial areas. When the paper was written, the international airport, the Convention Centre and the exhibit areas had not yet been serviced. The tram service crosses the Garonne at only one location, on the *Pont de pierre* bridge, the building of which was ordered by Napoleon I in 1807. The design of the new bridge on the Garonne between *Bacalan* and *Bastide* districts is at the stage of social consultation (*l'enquête publique*). The project involves making traffic lanes for public transportation, but without a tram line [11, p. 4].

Directing tram lines through historic protected areas required the implementation of an innovative technology to power tram cars by means of a third track in the track bed. For the first time in the world, a solution without overhead lines was implemented along a 10 km length of commercial line. Bordeaux was followed by Orléans, in which the newly designed East-West line will have no overhead lines along a 1 km section in the very heart

<sup>9</sup> 18<sup>th</sup> century architect family that designed e.g. *Le petit Trianon in Versailles* and *Place de la Concorde* in Paris.

of the city centre so as not to ‘pollute’ the view of the cathedral and the mayoralty building [17, p. 117]. Also, the city of Angers realised a tram line powered by a ‘third track’ for its city centre.



III. 8. Bordeaux tram network plan. Source: www.lacub.com

## 5. The Tram as an Efficient Urban Tool

Social mobility has been rising for almost two centuries in the developed and the developing countries alike. On average, every Frenchman between the ages of five and ninety-nine covers a distance of 15,000 km every year. The French work one day per week

to pay for their travels and they devote the equivalent of one working day per week for movement.

Urban mobility has two facets – it accompanies and stimulates economic growth, but it also generates unwelcome social, territorial and environmental effects [6, p. 3].

The tram meets expectations and realises tasks of contemporary cities as far as transportation is concerned, not only without generating negative effects, but positively influencing the process of shaping public spaces.

Thanks to modern technological solutions and comfortable tram-cars, it is possible to eliminate inconveniences traditionally associated with trams such as noise; vibrations; neglect; bothersome tracks. Today's tram-cars are environmentally friendly and move almost noiselessly through green areas. Overhead lines and posts do not degrade the valuable downtown areas.



III. 9. *Place de la Bourse*, Bordeaux. Photo by the author

Fast, stable, frequent connections, integrated ticket and information systems, and the inclusion of trams into efficient modal transport systems, all ensure reliability and comfort for passengers.

Numerous examples of realised projects slowly but steadily change the habits of inhabitants as far as movement is concerned. The tram, despite ongoing discussions, is getting increasingly higher social support thanks to significant promotional and informational efforts, as well as due to the participation of future passengers in consultations at the stage of project analyses.

Modern trams seem to be an efficient urban tool. Along with their reintroduction to French cities, the values lost in modernistic urban planning are also resurfacing. Streets and

squares are again becoming urban spaces accessible for pedestrians and other users. City structure is becoming more consolidated, and distant peripheral districts are 'brought closer' to the city centre.

Tramway oriented development (paraphrase of the term *Transit Oriented Development*) enables the designing of more environmentally friendly districts, less dependent on cars and urban phenomena generated by them (deglomeration, huge car parks). Districts with less intensive car traffic are developed along tram lines, the city gets more concentrated and the streets become more pedestrian and inhabitant friendly [13, p. 138].

## References

- [1] Antonini J.-C. (ed.), *A la découverte de votre tramway*, Maison du Tramway, Angers Loire Métropole, Angers 2008.
- [2] Ascher F. (ed.), *Bougel'Architecture, Villes et Mobilités*, Institut pour la Ville en Mouvement, Paris 2003.
- [3] Ascher F., *Les nouveaux principes de l'urbanisme*, Editions de l'Aube, 2008.
- [4] Belmont J., *Villes du passé, villes du futur*, Editions du Moniteur, Paris 1989.
- [5] CERTU, *Guide d'aménagement de voirie pour les transports collectifs*, Collections du Certu, 2000.
- [6] CERTU, *La mobilité Urbaine en débat, Cinq scénarios pour le futur?*, Collections du Certu, 2005.
- [7] Documentation photographique, *Les transports en France*, Dossier no. 8066, 2008.
- [8] Dolowy E., *Impact de la Mobilité sur les Formes Urbaines et Architecturales*, Rapport PREDIT, 2003.
- [9] GDF SUEZ, *Dossier de presse GNVERT*, Paris 2009.
- [10] Gouin T., *Planification urbaine et tramway en France: les leçons de l'expérience du tramway français moderne* ([www.euromedina.org](http://www.euromedina.org)), 2007.
- [11] Guet J.-F., *Le tramway, axe central du projet urbain de Bordeaux* ([www.certu.fr](http://www.certu.fr) from, 25.07.2009), article published in ISOCARP Review, No. 3, 2007.
- [12] Kantarek A.A., *Paryskie kwartały. Współczesna koncepcja kwartału zabudowy w strukturze miasta*, Wydawnictwo PK, Kraków 2004.
- [13] Laisney F., Grillet-Aubert A. (eds.), *Tramway – espaces publics et mobilités*, Architectures du Transport – Rapport final, Vol. 3-A, IPRAUS, Paris 2006.
- [14] Richards B., *Future Transport in Cities*, Spon Press, London 2001.
- [15] Sandèr A., *Faire la ville avec les noeuds de réseaux?*, [in:] A. Bourdin (ed.), *Mobilité et écologie urbaine*, Édition Descartes & Cie, Paris 2007.
- [16] Stambouli J., *Les territoires du tramway moderne: de la ligne à la ville durable*, [in:] *Développement durable et territoires*, Dossier 4: La ville et l'enjeu du Développement Durable, 2007 (<http://developpementdurable.revues.org>).
- [17] Tricoire J., *Le tramway en France*, La vie de Rail, Paris 2007.
- [18] Tricoire J., *Le tramway à Paris et en Il-de-France*, La vie de Rail, Paris 2007.





IWONA ORZECHOWSKA-SZAJDA\*

COMPLEXITY AS AN INDICATOR  
OF AESTHETIC QUALITY OF LANDSCAPE

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JAKOŚCI ESTETYCZNEJ KRAJOBRAZU

Abstract

The purpose of the article is to describe the *complexity* index as a quantitative parameter and indicate the position in the hierarchy of factors affecting urban riverside landscape on the example of the Odra River in Wrocław.

*Keywords: landscape complexity, aesthetic quality of landscape, landscape indicators, rough sets theory*

Streszczenie

Celem niniejszego artykułu jest opisanie wskaźnika *złożoność* jako parametru ilościowego oraz wskazanie miejsca w hierarchii czynników oddziałujących na wartość krajobrazu nadzecznej miast na przykładzie Odry we Wrocławiu.

*Słowa kluczowe: złożoność krajobrazu, jakość estetyczna krajobrazu, wskaźniki krajobrazu, teoria zbiorów przybliżonych*

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## 1. Introduction

In recent years the visual qualities have become an important element of landscape planning and management strategies [8, 30]. R.B. Litton (1979) underlines the gaps in knowledge and the need for research on the links between landscape structure and perception [19].

Ecological qualities of landscape and the indicators describing them are the subject of many scientific studies conducted worldwide; due to the Rio Declaration they were included in the environmental policies of states. Until recently the topic of visual quality of landscape received less attention in Europe. The situation was changed by the European Landscape Convention (2001), promoting an integrated approach to landscape combining social, cultural and visual aspects with ecological functions. The result of this is the fact that in recent years the landscape indicators have become one of the priorities of landscape research and are increasingly used in the assessment of landscape quality. The significance and need to include ecological aspects in addition to aesthetic ones in the research were emphasized by numerous researchers throughout the world [13, 22, 35, 36, 39].

Visual complexity of landscape refers to the diversity and wealth of elements in landscape and landscape patterns [21]. R. Kaplan and S. Kaplan (1989) stress the fact that complexity is the source of content and exploration opportunities [18]. The abundance of landscape elements and the diversity of land cover are, according to M. Tveit et al. (2006) the two most important indicators of visual landscape character [37]. Some studies emphasize the role of vegetation in landscape preferences [2], as well as spatial diversity and complexity [7], water forms [3], the lay of the land, topography, the scope of visibility [15, 27].

In the literature of the subject *complexity* is expressed as the diversity of elements in the form of the number and types of objects, land cover and pattern variability – the variety of forms of land use, as well as size and shape diversity. The description and approach to *complexity* depends to a large extent on the manner in which output information is obtained (Tab. 1); in most cases these factors are qualitative in nature. A. Ode et al. (2008) indicates the need to develop quantitative parameters permitting measurement and comparison [21].

According to [6] one of the only and at the same time most difficult steps in developing landscape valuation is measuring the impact power of the individual landscape elements on its general value.

Therefore the purpose of the article is to describe the *complexity* indicator as the qualitative parameter and to indicate its impact power as compared to other indicators on the value of urban riverside landscape on the example of the Odra River in Wroclaw.

## 2. Methods

Field studies were carried out on the Odra River in Wroclaw between the 248<sup>th</sup> kilometer of the Upper Odra in Wroclaw and the 252<sup>nd</sup> kilometer on the Central Wroclaw Water System.

The purpose of the field experiment was to obtain a linear film footage of the riverside landscape of Wroclaw seen from the river level, which was assumed as level zero. To accomplish that a motor boat was hired from the Water Rescue Service (WOPR).

The image was recorded using a professional camcorder Sony DCR-VX2000E, between 10 am and 2 pm at stabilized lighting conditions. The camera was attached in the front part of the boat in such a manner as to ensure a fixed viewing angle in relation to the level of the river. Moreover a photographic documentation was prepared of the Wrocław riverside landscape from the level of waterfronts.

Table 1

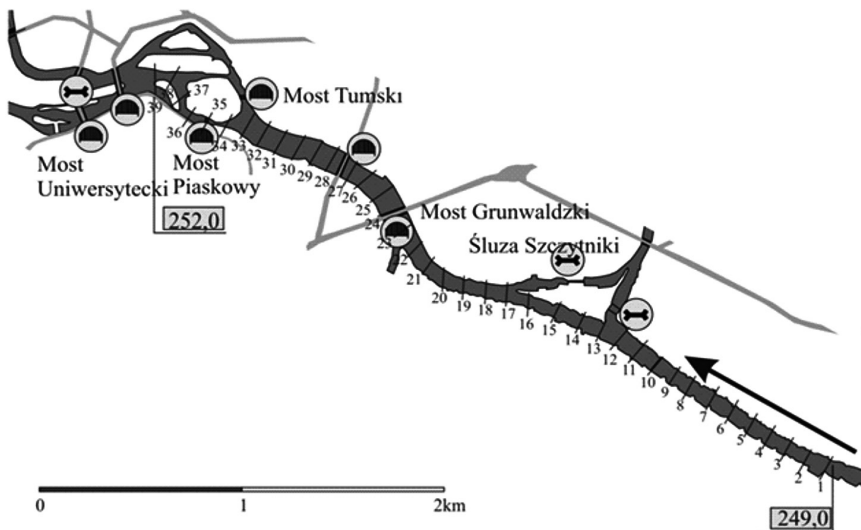
**Complexity – suggested indicators and application using different data sources [21]**

Concept	Data source			
Complexity	Landscape photos	Orthophotos	Land cover data	Field observations
1. <i>Distribution of landscape attributes</i>				
Richness of landscape elements	Number of landscape elements per view	Number of landscape elements per area	Number of landscape elements per area	Number of landscape elements per area
Diversity of land cover	Number of different land covers per view	Diversity and evenness indices <sup>a)</sup>	Diversity and evenness indices <sup>a)</sup>	Number of different land covers per area
2. <i>Spatial organization of landscape attributes</i>				
Edge density		Edge density <sup>a)</sup>	Edge density <sup>a)</sup>	
Heterogeneity		Heterogeneity Index <sup>b)</sup>	Heterogeneity Index <sup>b)</sup>	
Aggregation of land		Aggregation indices <sup>a)</sup>	Aggregation indices <sup>a)</sup>	
3. <i>Variation and contrast</i>				
Contrast	Degree of contrast between land covers in view			Degree of contrast between land covers
Shape variation	Degree of variation between shapes in view	Shape indices <sup>a)</sup>	Shape indices <sup>a)</sup>	Degree of variation between shapes
Size variation	Degree of variation between size in view	Size distribution indices <sup>a)</sup>	Size distribution indices <sup>a)</sup>	Degree of variation between size
<sup>a)</sup> A range of diversity, evenness, edge density, aggregation, shape and size distribution indices are found within landscape metric software such as FRAGSTAT [20] and IAN [10] developed within landscape ecology. <sup>b)</sup> The heterogeneity index is the proportion of points on different land types and is calculated using a grid of points for which land types are recorded [11].				

As shown in Tab. 1 the indicators describing the *complexity* of landscape in the studies based on photographic images are qualitative indicators. In the studies the aspect of spatial distribution of individual landscape attributes is completely overlooked. As a consequence an attempt at was made to describe the landscape as the contact point of various types and forms of use and land cover as well as a quantitative depiction of *landscape complexity* through two proprietary parameters: *the Vertical complexity coefficient [Vcc]* (Tab. 2) and *the Horizontal complexity coefficient [Hcc]* (Tab. 2).

The studies also covered inventory, analysis and assessment of the three groups of parameters related to riverside landscape of the town (after: [29]): the following aspects were included in the first of these: *the width of the river bed [wrb]*, *flora – number of species [f-ns]*, *flora – green coverage [f-gc]*, *nature value [nv]* [23]; the second group encompasses town-related factors, such as *landscape dominants [ld]*, *destructive elements [de]*, *historical value [hv]* [23] and the third group of perception-related parameters – *Horizontal complexity coefficient [Hcc]*, *the Vertical complexity coefficient [Vcc]*, *colour – number of colors [c-nc]*, *colour – harmony [c-h]* [23].

The distance between the valuation points was established at 100 m, thus outlining 40 valuation points (Ill. 1) on a 4-kilometer section of the river.



Ill. 1. Valuation points in the study area

The statistical analysis aimed at examining the impact power of the selected parameters on the riverside landscape value of towns utilizes rough sets theory [25, 31, 4, 5]. In this theory the information system is understood as:

$$S = (U, Q, V, \rho)$$

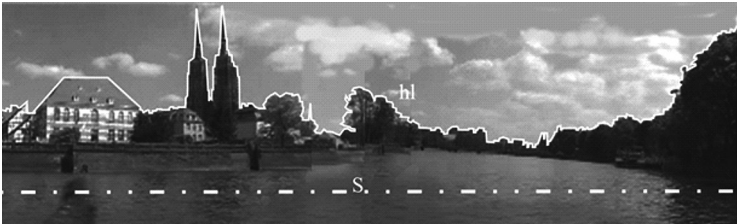
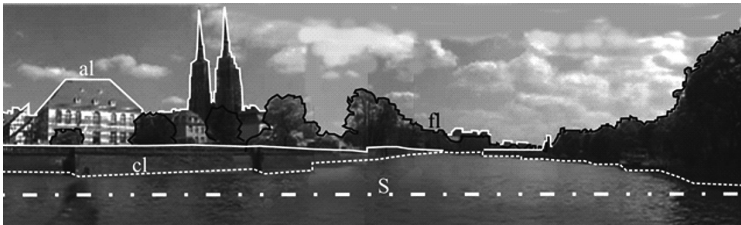
where:

- $U$  – finite set of objects,
- $Q$  – finite set of attributes:  $V = UV\rho, q \in Q,$

where  $V_q$  is the domain of attribute  $q$ ,  $\rho: U \times Q \rightarrow V$ , whereas the informative function is the one that  $\rho(x, q) \in V_q$  for each  $q \in Q$  and  $x \in U$  [4, 14].

Table 2

**Scoring and method for determining the parameters associated with the complexity of the landscape (author study)**

1.	<b>HORIZONTAL COMPLEXITY COEFFICIENT [Hcc]</b>	
description of factor	the ratio of horizontal line length to sectional view length	
method of parameter determining	<p><math>Hcc = hl/s</math></p> <p>where:</p> <p><math>Hcc</math> – horizontal complexity coefficient,  <math>hl</math> – horizon line length,  <math>s</math> – sectional view length.</p> 	
2.	<b>VERTICAL COMPLEXITY COEFFICIENT [Vcc]</b>	
description of factor	the ratio of the sum of the length of flora line, the length of architectural line and the length of coastal line to the length of sectional view	
method of parameter determining	<p><math>Vcc = (al + cl + fl)/s</math></p> <p>where:</p> <p><math>Vcc</math> – vertical complexity coefficient,  <math>al</math> – length of architectural line,  <math>cl</math> – length of coast line,  <math>fl</math> – length of flora line,  <math>s</math> – length of sectional view.</p> 	

Decision table – fragment of the chart (author study)

CONDITIONAL ATTRIBUTES												DECISION ATTRIBUTE
	associated with the river				related to the city			related to the perception				
1	2	3	4	5	6	7	8	9	10	11	12	13
observation point	width of the river bed [ <i>wrb</i> ]	flora – number of species [ <i>f<sub>ns</sub></i> ]	flora – green coverage [ <i>f<sub>gc</sub></i> ]	nature value [ <i>nv</i> ]	landscape dominants [ <i>ld</i> ]	destructive elements [ <i>de</i> ]	historical value [ <i>hv</i> ]	Vertical complexity coefficient [ <i>vcc</i> ]	Horizontal complexity coefficient [ <i>hcc</i> ]	colour – number of colors [ <i>c-nc</i> ]	colour – harmony [ <i>c-h</i> ]	VALUE OF LANDSCAPE
1.	4	3	4	4	1	1	1	1	1	1	2	2
2.	4	3	4	4	1	1	1	3	2	1	2	2
3.	4	3	4	4	1	1	1	2	2	1	2	2
4.	4	3	4	4	1	1	1	2	2	2	2	3
5.	4	3	4	4	1	1	1	3	3	2	2	3
6.	4	3	4	4	2	1	1	5	5	2	2	3
7.	4	3	4	4	2	1	1	5	5	2	2	4
8.	4	3	4	4	1	1	1	3	3	2	2	3
9.	4	3	4	4	2	1	1	2	1	2	2	4
10.	4	3	4	4	1	1	1	2	2	1	2	2
...												
36.	3	3	2	1	1	1	5	3	1	2	2	6
37.	5	3	2	1	1	1	2	3	2	3	2	9
38.	3	3	2	1	2	3	2	5	3	3	2	7
39.	3	3	2	1	2	3	1	5	4	2	1	5
40.	4	3	2	1	1	1	1	3	2	3	2	7

The information in a system based upon the rough set theory is stored in a tabulated form requiring the development of decision tables (Tab. 3) containing conditional attributes, that is elements whose impact is assessed and the decision attribute – an element that is subject to their influences. Conditional attributes – 11 parameters associated with a town's riverside landscape – require a division into classes, which are assigned corresponding point values. The division was made proportionately to the observed instances. Landscape value (decision attribute) was estimated at the point range between 0–10. The points are awarded after classifying the individual observed fragments to classes: degraded landscape, numerous destructive elements – 0,1; monotonous landscape, no or isolated eye-catching elements – 2, 3; landscape of moderate variety, with a small number of eye-catching elements – 4, 5, 6; diverse landscape with eye-catching elements – 7, 8; landscape unique on a town, country scale – 9, 10.

In the rough sets theory the parameter describing the impact power of conditional attributes on the decision attribute is the quality of approximation (approximation coefficient)  $\gamma_p$ , where:  $\gamma_p$  where:

$$\gamma_p = \frac{\sum_{i=1}^n \text{card}(PX_i)}{\text{card}(U)} \quad \text{dla} \quad F = \{X_1, X_2, \dots, X_n\}.$$

Approximation coefficient adopts the value from the range (0,1), where the value 0 defines the lack of any relationships between the examined attributes, whereas the value 1 signifies very strong relationships. In order to determine the impact power of the studied conditional attributes on the decision attribute, subsequent individual conditional attributes were removed, observing how the value of the approximation coefficient obtained for the whole set of attributes changes. The analysis included all the examined elements combined into groups of two, three and four. All the possible combinations of the evaluated elements were considered. The element or group of elements, whose removal results in the approximation coefficient  $\gamma_p$  taking the lowest value, has the greatest impact on the estimated landscape value.

### 3. Results

The application of the rough sets theory for the analysis of field study results allowed to determine that the connection between the specified parameters related to the town's riverside landscape and its visual value is similar in each case. The values of approximation coefficients calculated for individual attributes that were shown in Tab. 4 do not allow any of them to be distinguished.

In view of the above, the effects of the elements combined sets of two, three and four ones on the value of municipal riverside landscape were analyzed. The obtained results are demonstrated in Tab. 5, where the groups of factors characterized by the strongest effects are listed. Among all the groups of conditional attributes with the highest impact on the decision attribute in each case there are factors present that are related to the complexity of landscape structure. The sequence of groups presented in Tab. 5 comprising two elements



indicated three groups with an equivalent impact power, among which the parameters are present of *Horizontal complexity coefficient* [*Hcc*] and *colour – number of colors* [*c-nc*]. The analysis concerning the effects of groups of four attributes demonstrated that of greatest significance were *Vertical complexity coefficient* [*Vcc*], *the Horizontal complexity coefficient* [*Hcc*] and *colour – number of colors* [*c-nc*] the three parameters describing landscape complexity. Similar results were obtained in the analysis of a three-element system – the lowest value of the approximation coefficient was obtained for two equivalent groups comprising the *Vertical complexity coefficient* [*Vcc*], *the Horizontal complexity coefficient* [*Hcc*] and *colour – number of colors* [*c-nc*] parameters in combination with *landscape dominants* [*ld*] and *historical value* [*hv*], respectively.

Table 4

 $\gamma p$  – values calculated for simple attributes (author study)

Condition attributes		$\gamma p$ – values
Associated with the river	width of the river bed [ <i>wrb</i> ]	0.9487
	flora – number of species [ <i>f-ns</i> ]	0.9487
	flora – green coverage [ <i>f-gc</i> ]	0.8718
	nature value [ <i>nv</i> ]	0.9487
Related to the city	landscape dominants [ <i>ld</i> ]	0.8974
	destructive elements [ <i>de</i> ]	0.9487
	historical value [ <i>hv</i> ]	0.9487
Related to the perception	Vertical complexity coefficient [ <i>Vcc</i> ]	0.9487
	Horizontal complexity coefficient [ <i>Hcc</i> ]	0.8974
	colour – number of colors [ <i>c-nc</i> ]	0.8205
	colour – harmony [ <i>c-h</i> ]	0.9487



#### 4. Discussion

The objective of the experiment was to examine the power of impact of the *complexity* factor and to indicate the position in the hierarchy of factors influencing the visual quality of urban riverside landscape. The results indicate that the relationships in the spatial structure of landscape play an important role for its aesthetics.

The results obtained in the study indicate that the parameters describing the complexity of the structure, and thereby the landscape view belong to the parameters that have the greatest impact on aesthetic quality. The abovementioned findings are substantiated in the studies conducted by inter alia G. De la Fuente de Val and others [9], K. Hanyu [16], N. Schutte i J. Mallouff [28]. In numerous studies conducted worldwide the notions such as landscape complexity or diversity are similarly interpreted and evaluated attributes, and the high value of coefficient assessment is strongly correlated with landscape structure [12, 17, 33]. The indicators describing diversity and complexity of landscape in fact have been considered by many researchers as the most important prognostic factors in the process of investigating aesthetic preferences of landscape [9, 12, 40].

The fact that diversity of spatial structure of landscape has significant correlations with aesthetic value is also underlined by J.F. Palmer (2004), simultaneously indicating spatial aspects that have the most powerful effect on the understanding of landscape aesthetics research [24]. In his studies, the diversity of land surface is indicated as the most important spatial attribute affecting the quality of landscape – the aspect was expressed as the *Vertical complexity coefficient* [vcc] in this study.

The presented results of the paper show that analogically to the studies carried out by G. De la Fuente de Val and others [9], N. Schutte and J. Mallouff [28], A. Scott [30], that landscape diversity affects aesthetic qualities of landscape. However, as indicated by the latter, the relationship is not simple – crossing a certain level of complexity may have a negative impact on the clarity and understanding of the landscape by an observer, thus a crucial aspect is also spatial order and harmony [32] and a limited number of elements and colors introduced into the landscape [26, 34].

The rough sets theory, although not used for landscape research to date, is a methodology for solving numerous problems that require intelligent data analysis, seeking hidden interrelationships between data and making appropriate decisions in a situation of incomplete or partially contradictory data being present. Moreover, one of the advantages of the applied method – a substantial one in the case of estimating landscape value, is the possibility to obtain credible results even for small databases [4].

#### 5. Conclusions

The results obtained in the paper show that spatial indicators describing landscape complexity are one of the essential ones and may be used for assessing its aesthetic quality.

Landscape diversity plays an important role in the visual perception of aesthetic characteristics and provides numerous psychological advantages. Homogenization of landscape may not only lower its value but also adversely affect psychological well-being.

Some authors suggest that higher uniformity of agricultural landscapes contributes to a less favorable perception of its visual qualities, mainly due to the lack of color contrast caused by reduced diversity of plants, monoculture plantations [38, 1].

## References

- [1] Arriaza M., Cañas-Ortega J.F., Cañas-Madueño J.A., Ruiz-Aviles P., *Assessing the visual quality of rural landscapes*, Landscape and Urban Planning, 69, 2004, 115-125.
- [2] Bishop I., *Comparing regression and neural net based approaches to modelling of scenic beauty*, Landscape and Urban Planning, 34, 1996, 125-134.
- [3] Bishop I., Hulse D., *Prediction of scenic using mapped data and geographic information systems*, Landscape and Urban Planning, 1994, 59-70.
- [4] Bondar-Nowakowska E., Dejas D., Reinhard A., *Określenie hierarchii czynników wpływających na czas napełniania łyżki maszyny Pelikan przy odmulaniu cieków z zastosowaniem teorii zbiorów przybliżonych*, Przegląd Naukowy Wydziału Melioracji i Inżynierii Środowiska, Szkoła Główna Gospodarstwa Wiejskiego w Warszawie, Warszawa 1996.
- [5] Bondar-Nowakowska E., Dejas D., *Zarządzanie ryzykiem ekologicznym na przykładzie robót konserwacyjnych na ciekach*, Roczniki Akademii Rolniczej w Poznaniu CCCLXV, Melior. Inż. Środ., 26, 2000, 57-62.
- [6] Buhyoff G.J., Riesenmann M.F., *Experimental manipulation of dimensionality in landscape preference judgements: a quantitative validation*, Leisure Sciences, 2, 1979, 236.
- [7] Crawford D., *Using remotely sensed data in landscape visual quality assessment*, Landscape and Urban Planning, 30, 1994, 71-81.
- [8] Daniel T., *Whither scenic beauty? Visual landscape quality assessment in the 21st century*, Landscape and Urban Planning, 56, 2001, 267-281.
- [9] De la Fuente de Val G., Atauri J.A., De Lucio J.V., *Relationship between landscape visual attributes and spatial pattern indices: A test study in Mediterranean-climate landscapes*, Landscape and Urban Planning, 77, 4, 2006, 393-407.
- [10] DeZonia B., Mladenoff D.J., *Computer software program produced by the authors at the Department of Forest Ecology & Management*, Madison, WI: University of Wisconsin, IAN 1.0.15, 2004 (<http://landscape.forest.wisc.edu/projects/ian/>).
- [11] Fjellstad W.J., Dramstad W.E., Strand G.H., Fry G.L.A., *Heterogeneity as a measure of spatial pattern for monitoring agricultural landscapes*, Norwegian Journal of Geography, 55, 2001, 71-76.
- [12] Francès R., *Psychologie de L'art et de L'esthetique*, Presses Universitaires de France, Paris, 1968, [za:] G. De la Fuente de Val, J.A. Atauri, J.V. De Lucio, *Relationship between landscape visual attributes and spatial pattern indices: A test study in Mediterranean-climate landscapes*, Landscape and Urban Planning, 77, 4, 2006, 393-407.
- [13] Fry G., Tveita M.S., Ode A., Velarde M.D., *The ecology of visuallandscapes: Exploring the conceptual common ground of visual and ecological landscape indicators*, Ecological Indicators, 9, 5, 2009, 933-947.
- [14] Hachoł J., Bondar-Nowakowska E., Reinhard A., *Oddziaływanie wybranych elementów koryta cieku na zbiorowiska naczyniowych roślin wodnych*, Infrastruktura i Ekologia Terenów Wiejskich, 7/2008, Polska Akademia Nauk, Oddział w Krakowie, 255-266.
- [15] Hammit W., Patterson M., Noe F., *Identifying and predicting visual preference of southern Appalachian forest recreation vistas*, Landscape and Urban Planning, 29, 1994, 171-183.
- [16] Hanyu K., *Visual properties and affective appraisals in residential areas after dark*, Journal of Environmental Psychology, 17, 1997, 301-315.

- [17] Herzog F., Shier R., *Complexity, age and building preference*, Environment and Behavior, 32 (4), 2000, 557-575.
- [18] Kaplan R., Kaplan S., *The Experience of Nature. A Psychological Perspective*, Cambridge University Press, Cambridge 1989.
- [19] Litton R.B., *Descriptive approaches to landscape analysis*, [w:] G.H. Elsner, R.C. Smardon, *Proceedings of Our National Landscape: A Conference on Applied Techniques for Analysis and Management of the Visual Resource*, Incline Village, Nevada, April 23–25, 1979, 77-87.
- [20] McGarigal K., Cushman S.A., Neel M.C., Ene E., *FRAGSTATS: Spatial Pattern Analysis Program for Categorical Maps*, Amherst: Computer software program produced by the authors at the University of Massachusetts, 2002 ([www.umass.edu/landeco/research/fragstats/fragstats.html](http://www.umass.edu/landeco/research/fragstats/fragstats.html)).
- [21] Ode A., Tveit M., Fry G., *Capturing landscapevisual character using indicators: touching base with landscape aesthetic theory*, Landscape Research, 33, 2008, 89-118.
- [22] Opdam P., Foppen R., Vos C., *Bridging the gap between ecology and spatial planning in landscape ecology*, Landscape Ecology, 16, 2002, 767-779.
- [23] Orzechowska-Szajda I., *Kształtowanie przestrzeni na styku miasto-rzeka. Model waloryzacji miejskich krajobrazów nadrzecznych*, Rozprawa doktorska napisana w Instytucie Architektury Krajobrazu Uniwersytetu Przyrodniczego we Wrocławiu pod opieką dr. hab. T.J. Nowaka, prof. nadzw., Wrocław 2009.
- [24] Palmer J.F., *Predicting scenic perceptions in a changing landscape: Dennis, Massachusetts*, Landscape and Urban Planning, 2004, 201-218.
- [25] Pawlak Z., Rough sets. Intern. Ministra. of Information and Computer Sciences, Nr 11 (5), 1982.
- [26] Peterson G., *Evaluating the quality of the wilderness environment*, Environment and Behavior, 6, 1974, 169-193.
- [27] Purcell T., Lamb R., *Preference and naturalness: an ecological approach*, Landscape and Urban Planning, 42, 1998, 57-66.
- [28] Schutte N., Mallouff J., *Preference for complexity in natural landscape scenes Percept*, Motor Skills, 1986, 109-110, [za:] G. De la Fuente de Val, J.A. Atauri, J.V. De Lucio, *Relationship between landscape visual attributes and spatial pattern indices: A test study in Mediterranean-climate landscapes*, Landscape and Urban Planning, 77, 4, 2006, 393-407.
- [29] Silva J.B., Saraiva M.G., Ramos L., Bernardo F., Monteiro F., *Identification of parameters to be monitored for aesthetic assessment*, Urban River Basin Enhancement Methods, Lisbona 2003.
- [30] Scott A., *Assessing public perception of landscape: the LANDMAP experience*, Landscape Research, 7 (3), 2002, 271-295.
- [31] Słowiński R., *Intelligent decision support. Applications and advances of the rough sets theory*, Kluwer Academic Publ., Dordrecht 1992.
- [32] Staats H., Gatersleben B., Hartig T., *Change in mood as a function of environmental design: arousal and pleasure on a simulated forest hike*, Journal of Environmental Psychology, 1997, 283-300.
- [33] Stamps A., *A paradigm for distinguishing significant from non-significant visual impacts: theory, implementation, case histories*, Environmental Impact Assessment Review, 17, 1997, 249-293.
- [34] Todorova A., Asakawa S., Aikoh T., *Preferences for and attitudes towards street flowers and trees in Sapporo*, Japan, Landscape and Urban Planning, 69, 2004, 403-416.
- [35] Tress B., Tress G., Decamps H., d'Hautesserre A.-M., *Bridging human and natural sciences in landscape research*, Landscape and Urban Planning, 57, 2001, 137-141.
- [36] Tress G., Tress B., Fry G., *Analysis of the barriers to integration in landscape research projects*, Land Use Policy, 24, 2007, 374-386.

- [37] Tveit M., Ode, Fry G., *Key concepts in a framework for analysing visuallandscape character*, Landscape Research, 31, 2006, 229-256.
- [38] Weinstoerffer J, Girardin P., *Assessment of the contribution of land use pattern and intensity to landscape quality: use of a landscape indicator*, Ecological Modelling, 2000, 95-109.
- [39] Wissen U., Schroth O., Lange E., Schmid W.A., *Approaches to integrating indicators into 3D landscape visualisations and their benefits for participative planning situations*, Journal of Environmental Management, 89 (3), 2008, 184-196.
- [40] Wohlwill J., *Environmental aesthetics: the environment as a source of affect*, Human Behavior and Environment, 1, 1976, 37-86.



DANUTA SZYSZKO\*

NARRATIVENESS AS A CHARACTERISTIC FEATURE  
OF MODERN STAINED GLASS ART IN MODERNIST  
AND POSTMODERNIST INTERIORS OF THE CHURCHES  
IN KRAKOW

NARRACYJNOŚĆ JAKO CECHA CHARAKTERYSTYCZNA  
WSPÓŁCZESNEJ SZTUKI WITRAŻOWEJ  
WE WNĘTRZACH MODERNISTYCZNYCH  
I POSTMODERNISTYCZNYCH ŚWIĄTYŃ KRAKOWA

Abstract

Narrativeness, often manifested by direct, figurative way, sometimes also encoded within the abstraction, is the essence of stained glass paintings in church interiors. One of the ways of reading the ambiguous content is to define mutual relationship of form and the imagery hidden in stained glass, as well as to diagnose the imaging methods adopted by the artist in the context of sacred architectural space. The aim of this paper is to analyze in that way selected works created after the Second Vatican Council (1962–1965), which complement the interiors of the Krakow churches.

*Keywords: contemporary stained glass, church architecture, Krakow*

Streszczenie

Istotą obrazów witrażowych we wnętrzach sakralnych jest ich narracyjność. Objawia się ona za pomocą bezpośredniego, przedstawieniowego przekazu, bywa też zakodowana w obrębie abstrakcji. Jednym ze sposobów odczytania niejednoznacznej często treści jest określenie wzajemnej relacji formy i ukrytej w witrażu metaforyki oraz diagnoza przyjętej przez artystę metody obrazowania w kontekście sakralnej przestrzeni architektonicznej. Niniejszy artykuł podejmuje próbę analizy w powyższym zakresie wybranych dzieł powstałych po Soborze Watykańskim II (1962–1965), uzupełniających wnętrza kościołów Krakowa.

*Słowa kluczowe: współczesny witraż, architektura sakralna, Kraków*

**Translated by: Biuro Tłumaczeń „Supertłumacz”.**

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## 1. Introduction

Modern stained glass art traditionally maintains a deep relation with religion – it proudly represents modern visuality, highlighting narrativeness of sacral architecture at the same time. Presence of numerous valuable works from this field, which supplement visual arts of church interiors in Krakow proves that the fascination with optical and psychological aspect of the illumination process does not fade away, as a result of which the transcendent divine sphere can be captured by a human eye under the impact of light. A stained glass picture, is conventional border between *sacrum* and *profanum*, a surface of mutual infiltration of symbolism and context, as well as an “agent” facilitating decoding meanings and hidden allegories, still seems to be an ideal supplement of a church block.

In the article entitled *Najnowsze polskie witraże sakralne (The newest Polish sacral stained glass pictures)*<sup>1</sup> Maria J. Żychowska writes that individuality of Polish modern stained glass art results directly from conservative attitude of artists to applied technologies, which as a consequence, places it out of the world-wide “stained glass avant-garde”. This observation can be referred to the environment of artists from Krakow, in which the technology of traditional lead stained glass picture is still the most popular, whereas alternative solutions, such as *fusing*, or even *dalle de verre*, are rarely used. Conservative approach to technologies of creation can even be interpreted as a specific feature of stained glass industry in Krakow, which, however, does not determine a lack of formal abundance of works, which in many cases represent a high artistic level and a multi-layer form. A very significant (or even foreground) is also a characteristic feature given by the artist; among the representatives of Krakow the following persons should be mentioned here, inter alia, Teresa Stankiewicz, Józef, Tadeusz and Tomasz Furdyna, Maciej Kauczyński, Wiktor Ostrzolek and Jerzy Skąpski. All persons are the authors of valuable works, both in old and also new modernized sacral interiors.

What language does a stained glass window use in the sacral scenery today? In what way does it become a carrier of complex form, requiring special interpretation and reflection? This article makes an attempt of analysing interactions of selected examples of stained glass compositions supplementing the form of churches in Krakow and Christian “genius loci”.

## 2. Representational art: a dialogue of an archetype with a colourful symbol

Representational works dominate as regards stylistics adopted in interiors of churches in Krakow, which are differentiated in the scope of methods of visualising contents (from historic to synthetic) and are sometimes characterised by a wide range of applied colours and geometrisation of forms. Thanks to the play of light, colours and shadows of coloured pieces of glass, organised in clear pictures, this type of narration often plays a role of illustrating selected parts of the Holy Bible and invariably brings their contents closed to the recipient by accessible application of a literal message. The scenes use a comprehensible language of an archetype, however, the process of “illumination” itself in the case of representational

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<sup>1</sup> Sacrum et Decorum. Materiały i studia z historii sztuki sakralnej (Materials and studies from the history of sacral art), 1/2008, 124-138.

stained glass pictures, can be interpreted as simultaneous infiltration of *splendour*, *sacrum* and knowledge through church windows, as they play the role of contemporary *Biblia pauperum*.

Out of figurative representations completed in the last 50 years, which prevail on stained glass pictures in many churches in Krakow, very expressive “vibrating” pictures can be referred to that are located in the church of St. Wojciech (ul. św. Wojciecha 4, arch. arch. W. Seruga and M. Buratyńska-Seruga, 1992–1997) of the authorship of M. Kauczyński. The works of this famous artist (honoured with the Order of St. Sylvester by John Paul II) present saints and blessed that are related to the archdiocese of Krakow (Ill. 1) and the Resurrected Christ – the artist uses, inter alia, multi-colour, restless background, combined with a bright red colour coming out of it, symbolising blood, suffering – but also revival and resurrection. Providing strong contrast between each other, saturated colours in combination with irregular course of joints cause that there evokes an impression of movement, whereas the stained glass pictures themselves by constituting an element of the interior with of significant impact, decide in greater extent about its character.

In the church of Christ the King in Przegorzały (ul. Zaskale 1, arch. arch. W. Pietraszewski, O. Vogt, 1970–1971, the last renovation 1986) there is a group of seven stained glass representations of the authorship of Wiktor Ostrzołek. They are characterized by expression obtained thanks to using the limited number of highly contrasting colours of glasses by the artist (inter alia, combining aggressive red colour with orange and celadon green). The prevailing vertical system of joints makes an impression of order and stability of composition, disciplining to some extent the colour scheme, which has intensive impact on a recipient. The Biblical topic of stained glass pictures was illustrated with the help of highly geometrized forms; within the area of five representations located in the south-western wall, the earlier lower parts provide figurative representations: sacrifices of Abel, Melchizedek, Isaac and Christ, as well as the Lord’s Supper (Ills. 8, 9). Above them in the form of later additions the appropriate symbolism was placed (inter alia, an ear of grain and a bunch, a thurible and a Paschal lamb). All figures have clearly marked face features: big eyes, hair in shades of light azure and grey colours and light clothes. However, the red colour stands out in the background area. The solutions used by the artist are coherent, the fragments with different time of creation are harmonious and combine with each other in an unnoticeable way. The manner of presenting faces evokes distant associations with icons. In the interior of the church the works of Ostrzołek contrast with asymmetric, irregular abstractions of Helena and Roman Husarscy (Ill. 10).

Figurative stained glass pictures of the authorship of Danuta and Witold Urbanowicz (Ills. 4–6) fill window openings with varied sizes and their inhomogeneous arrangement in the church of St. John the Baptist (ul. Dobrego Pasterza 116, arch. arch. W. Obtulowicz, D. Olędzka, 1984–1989). The most effective of them (inter alia, the biggest one presenting the flood) are located on the eastern wall and their subject matter refers to the traditional relation of the Old Testament topic with the left side of the church. A vertical, abstractive stained glass picture is located in the Presbyterian part of the church and plays the function of the luminous background for the sculptural composition of “baptism in Jordan”<sup>2</sup>.

<sup>2</sup> Designed by Wincenty Kućma.



III. 1. *Blessed Aniela Salawa*, stained glass picture of the authorship of M. Kauczyński, the church of St. Wojciech (photo by D. Szyszko)



III. 2. *Real architecture*, stained glass picture of the authorship of M. Kauczyński, the church of St. Wojciech (photo by D. Szyszko)



III. 3. *Architectural motifs*, stained glass picture of the authorship of M. Kauczyński, the church of St. Wojciech (photo by D. Szyszko)



III. 4. Stained glass picture of the authorship of Danuta and Witold Urbanowicz, the church of St. John the Baptist (photo by D. Szyszko)

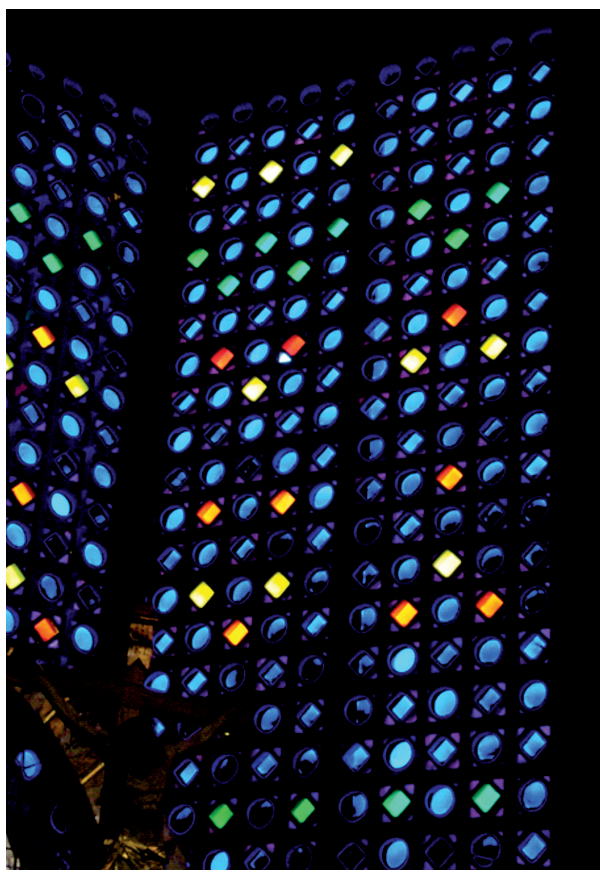


III. 5. *The sacrifice of Isaac*, stained glass picture of the authorship of Danuta and Witold Urbanowicz, the church of St. John the Baptist (photo by D. Szyszko)



III. 6. *Peacocks* – a symbol of immortality, resurrection, stained glass picture of the authorship of Danuta and Witold Urbanowicz, the church of St. John the Baptist (photo by D. Szyszko)

The colours of glasses refer to historically preserved symbolism and highly contrasted in the scope of colour scheme and temperature: red colour dominates, which builds intensive relations with the shades of yellow and azure colours. The interesting thing is the fact of small glazed pieces placed on the western side, which constitute modest, mostly abstractive compositions, disturbing at the same time the rule which is common in the Christian symbolism, ascribing the main significance to the right part of the church – they also make it possible to move to the next level of interpretation: turning the church towards the values of the Old Testament. Does a Synagogue play a more significant role than Ecclesia according to designers? The postmodernist architecture, which changes a viewer into an active recipient as a rule, obtains on such supplement an additional level, which can be subject to decoding; when stained glass pictures “speak” on various levels, by their hidden contents and enrich an architectural masterpiece with a spiritual aspect, then they not only open the world of beauty for their believers, but also incline them to reflection and take up a theological discourse, to whom the narration becomes to be subject to.



III. 7. Abstract stained glass pictures made by Waclaw Taranczewski supplement the earlier modernist interior of the church of Our Lady of Victory (photo by D. Szyszko)

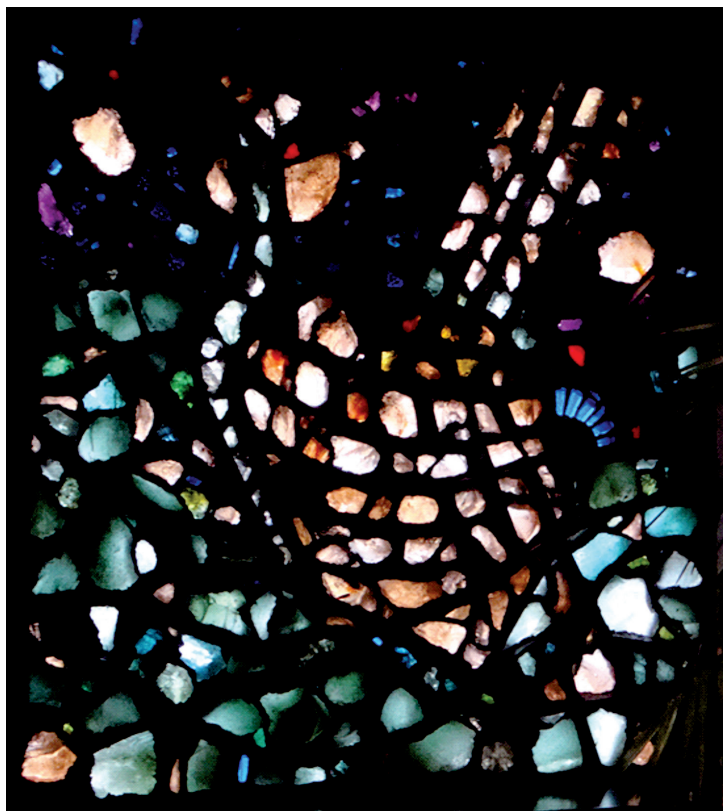




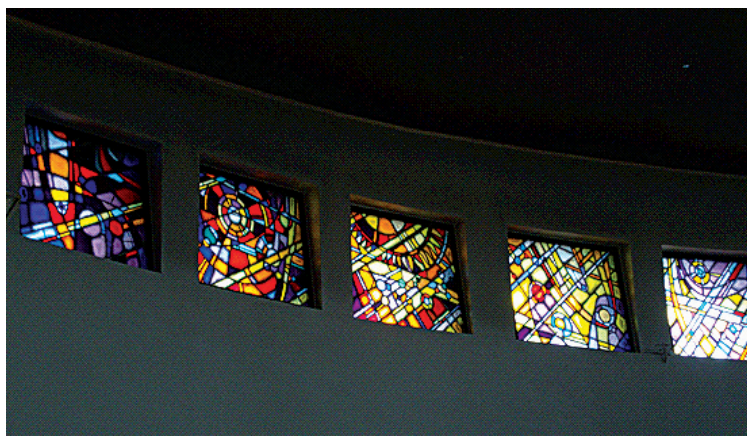
III. 8. *The sacrifice of Isaac*, stained glass picture of the authorship of Wiktor Ostrzołek, the church of Christ the King in Przegorzały (photo by D. Szyszko)



III. 9. *The Lord's Supper*, stained glass picture of the authorship of Wiktor Ostrzołek, the church of Christ the King in Przegorzały (photo by D. Szyszko)



III. 10. Irregular abstractions by Helena and Roman Husarski, the church of Christ the King in Przegorzały (photo by D. Szyszko)



III. 11. The horizontal sequence of the authorship of Andrzej Dzięgielewski, the church of St. John Kanty (photo by D. Szyszko)

### **3. Stained glass as a hologram. Three-dimensionality and two methods of building relationships with the environment**

Stained glass pictures engage the scenery in an active and direct way, which reflects light, is subject to influence of atmospheric conditions, and is unclear and located beyond them: changing contour of clouds, trees submitting to wind and finally a day-to-day solar cycle. Thereby they cause spatial effects going beyond the levels of window partitions and openings. Greater clarity guarantees interaction of the interior with the exterior, imposing the role of a multi-layer hologram of the existing and created reality for the glazed parts. The artists, who are aware of this property, go beyond the limits of flat geometry and also use spatial relations in compositions created by them. This takes place e.g. in the case of the glazed parts of the Road of the Cross in the Church of Jesus Christ's Sacred Heart (ul. Ludźmierska 2, arch. arch. K. Ingarden, P. Gawor, J. Ewy, 1998–2001) of the authorship of Józef Skąpski, which expose their subject matter almost like a screen at the background of the buildings of the estates in Nowa Huta. Subtly coloured buildings, which are seen from the inside, gain oneiric lightness, raw colour of the surrounding areas undergo moderate transformation, contrasting at the same time with the drama of the subject matter presented on the stained glass pictures. The surrounding areas are depicted as the background of the picture – it brings its subject matter closer and “tames” it.

A different approach can be found in the interior of the post-modernist church of the blessed Aniela Salwa (al. Kijowska 29, arch. arch. J. and A. Dutkiewicz, 1991–1995). The intensity of saturated colourful patches dominate in it, which affect each other in a suggestive and unconventional manner in the area of figurative glazed parts of windows designed by Teresa Stankiewicz at the half of the 90's of the last century. The stained-glass manner of visualising applied in these compositions also finds its continuation in the painted stations of the Road of the Cross painted by this artist. Apart from the references to pericopes of the Gospels, the architectural motifs can also be found in them: reproduction of the basilica of St. Peter in Rome, Wawel, Nasareth House and scenery (bend of Vistula, mountainous landscape). Similar topical solutions were applied by inter alia, Maciej Kauczyński in the church of the Our Lady of the Rosary (ul. Skotnicka 139 a, arch. arch. J. Duliński, P. Koperski, L. Morys, W. Padlewski, 1997–1999) and already mentioned the church of St. Wojciech (Ills. 2, 3), but also Edward Dawidowski in the interior of the church of Our Lady of Perpetual Help (os. Bohaterów Września, arch. arch. M. Janowski i Z. Janowski, 1991–1993). Narrative realism can be observed here, which – thanks to the application of different variants of representing a landscape – enables to directly refer to postmodernist postulate of building relations of architecture of art with the environment.

### **4. Between abstraction and representation: from additions to modernist interiors up to a “cosmic” stained glass**

Solutions with the character of colourful abstractions have become more and more popular since the half of the 60's of the last century – this is, inter alia, a response to the recommendations made by the Vatican Council II of opening of the Church to modern

art<sup>3</sup>. Abstract glazed parts of the stained glass pictures evoke sensual experience, above all, thanks to gradation of colours in the architectural area. The process of light diffusion itself, which is contrasted with explicit form of connections, results in the effect of a kaleidoscope and is sufficient for a stained glass picture to become the strong means of shaping atmosphere. When applied both in the area of small window opening, as and in the form of a part of monumental solutions – even quite often as transparent partitions – it gives unreal, but dynamic dimension to the walls. Thanks to illuminating with rays at the same time, exuding from the glass, it enriches architectural space with colourful “soul” of the symbolism of colours consolidated in the tradition and builds the micro-cosmos of a heavenly dimension in the contemporary world. It is worth to refer to the opinion here of the father Piotr Cholewka, who fully appreciates the possibility of intuitive experiencing of abstractions, by acknowledging it as a proper and contemporary way of religious message and states that *putting together the “harmonies of colours” themselves with the composition of suggestive graphics constitutes the direct clearness of the spiritual message of each non-figurative masterpiece!*<sup>4</sup>

Modernity arising from the traditional basis is represented by a unique formal clarity of the set of stained glass pictures made by Waław Taranczewski, who supplements the earlier modernist interior of the church of Our Lady of Victory (ul. Zakopiańska 86, arch. T. Reuttie, 1937–1939). The sequences of rhombuses and circles arranged on the irregular grid of joints constitute contemporary and at the same time static background for the altar, which has a strong impact on a recipient (Ill. 7). The kinetic spectacle of rhythmical, non-figurative patterns obtained only with the help of the set of shapes, lines and colours (in which a mystic azure prevails), has the enormous power of impact and makes it possible to experience the atmosphere marked with divine presence. Although this “pop-art” composition, which was created about the year of 1965, brings to think about the stylistics of visualism that was popular at that time, however, it affects the senses and emotions of a viewer by a subtle and expressed play of colours. The solutions that are close to the aforementioned examples are very rare in Krakow, as one, less or more precisely defined topic is mostly taken within the framework of the stained glass pictures, whereas the internal partitions of the stained glass pictures do not have so clear regularity. Although the ordered rhythm of quadrangular partitions can also be found e.g. in the monumental post-modernist church of St. Maximillian Kolbe (os. Tysiąclecia 86, arch. J. Dutkiewicz, 1976–1983), however, the level of its impact is incomparably smaller: mild and subdued colours of glasses blur and disappear there in the enormous interior.

<sup>3</sup> “Moreover, the art of our epoch, as well as of all nations and regions can freely develop in the Church, as long as it serves to churches and religious ceremonies with due reverence and respect, so that it could add its voice to this wonderful hymn of glory, which the greatest artists sang in the honour of the catholic faith in the previous centuries (...)” (*The Constitution on Liturgy*, n. 123, [in:] *Vatican Councili II*, Poznań 1968, sp. 68).

<sup>4</sup> *Stained glass windows in Kupno. Katecheza piękna światła (Catechesis about the beauty of light)*, texts: P. Cholewka, K. Ivosse, Lieusaint 2004, 53, quoted after: M.J. Żychowska, *O. Piotr Cholewka – known unknown, Sacrum et Decorum. Materiały i studia z historii sztuki sakralnej (Materials and studies of the history of the sacral art)*, 4/2011.

It is worth to mention about a set of stained glass pictures designed by the Salesian, priest Tadeusz Furdyna for the modernist church of St. Stanislaus Kostka (ul. Konfederacka 6, arch. W. Krzyżanowski, 1932–1938) and made in 1970. As it is the case of the church of Our Lady of Victory, the stained glass pictures complement the older interiors here. Non-figurative compositions predominate, within the framework of which ordered gradation of colours causes impression of ascending and lightness. The pictures seem to be “woven” with rays of light and enhance the atmosphere of concentration. There is no violent expression; combinations of colours are balanced and coherent; red colour is dominated by numerous shades of azure, violet and green, which are applied with great intuition. The artists synthetically presented few figures, however, he operated with clear symbolism, which facilitates interpretation. He visualised the illustrations of twelve Apostles, who have no faces and are schematically outlined, in the green areas, however, the fiery tongues show the presence and acting of the Holy Spirit that descended to them in the Cenacle, which is a clearly signalled reference to the subject matter of the Holy Bible<sup>5</sup>. Adam and Eve keep the forbidden fruit from the tree of knowledge on the picture illustrating the birth sin. The blessing hand of the Creator, emerges from the heaven and dominates over them, from which the rays and conventional figures of the saints come out (it is possible to differentiate them thanks to nimbuses). Tiny plant-like motifs constitute an integral part of the background.

In the case of both aforementioned examples, the stained glass pictures complement interiors of objects of modernist churches, which results in the interesting effect of enriching their severe aesthetics with an element of beauty, which is not entirely subject to construction. Adding colours and texture is a response to the charge of sterility, which is often made for modernist sacral objects. Both in the church of Our Lady of Victory and in the church of St. Stanislaus Kostka, the mutual relations of colours play the foreground role now, although the methods of visualisation used by the artists, extremely differ from each other.

The majority of stained glass pictures located in the church of St. John Kanty (ul. Jabłonkowska 18, arch. K. Bień, 1983–1992), can be classified as being between abstraction and representation. Horizontal sequence of the authorship of Andrzej Dziegielewski (Ill. 11) copies the system of the ceiling, which constitutes the architectural interpretation of the firmament; the stained glass pictures here become a continuation of a horizon, maybe even constituting a distant reference to assumptions of the cosmologic philosophy. Their futuristic message has strong impact in the surrounding of the raw interior. A dynamic, unordered division and a graphic structure of lines intensify expression of references to the sphere of Cosmos, whereas the line of glazed parts visualising vibrating celestial bodies and depopulated, fanatic landscapes, perfectly bonds bright walls of the interior with spacious, dark and horizontal area that is hung over them (which is additionally punctually lit with electric “stars”). Their structure suggests a horizon, a border of a contact point between a cosmos and the earth surface as well as a symbolic *axis mundi*. The vertical course of window openings intensifies this horizontal axis, however, it makes it possible for the “divine” light to fill the area below at the same time.

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<sup>5</sup> (Acts 2, 1-13).

## 5. Conclusions

The stained glass pictures in Krakow created in the interior of churches in the period of the last fifty years constitute a result of numerous independent factors: decisions of the Vatican Council II, the complex political situation in Poland and the new tendencies occurring in the architecture. Allusions to popular philosophical trends are reflected in them, as well as multi-layer references to the religious subject matters, speaking with a subtle language of symbols and allegories, which is particularly appreciated by the artists of the post-modernist period. It should be remembered while interpreting narrativeness of the stained glass pictures that context differences often have impact on exposing their definite features<sup>6</sup> – they determine the final shape and subject matter of a piece of art to a great extent. The theological individuality of stained glass pictures determines their independence: a stained glass picture subordinates to architecture and construction only at a certain level, but in many cases in full, even maintaining semantic and formal autonomy at the same time.

The limited status of studies over post-conciliar stained glass art, developing in the area of church interiors in Krakow (and the whole Little Poland), arises a necessity of making the analysis, which is based on earlier collected and detailed documentation. Only few tendencies and transformations in the scope of narrativeness of modern sacral stained glass pictures have been outlined and enumerated in this article, for which the impulse was, inter alia, the decisions of the Vatican Council II; increasing acceptance of abstraction as a proper way of artistic transmission of subject matters related to religion and faith, with relentless popularity of representational compositions, occurring of numerous solutions to popular trends of modern art of painting and confronting archetypes with modern methods of their illustrating, as even application of expressive, simply fauve colour scheme in the pieces of art of M. Kauczyński, on the contrary – rigorous limitation of colours applied by W. Taranczewski in formally “disciplined” stained glass pictures of the church of Our Lady of Victory, significant conventionality in the case of the visualisation made by the priest Tadeusz Furdyna of the illustrations of twelve Apostles without faces in the church of St. Stanislaus Kostka or limiting or increasing the number of joints and highlighting their horizontal or vertical rhythm, which can be observed e.g. in the work of W. Ostrzołek in the church of Christ the King in Przegorzały. Moreover, the attention has been drawn to the evolution of the form and brave behaviours of the artists going beyond two-dimensionality of pictures by conscious involvement of the environment in the designed compositions. The most popular topic of stained glass representations in Krakow in the period of the second half of the 60’s of the last century until today has also been presented to a small extent. However, the starting point for making evaluation of the level of individualism and uniqueness of the stained glass pictures in churches in Krakow in the broader context – as well as the basis for adopting future conservational solutions – should become the detailed semantics including the influence of, inter alia, cultural, historical and social factors, as well as differentiating regional features occurring in numerous works.

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<sup>6</sup> In the scale of an interior, however, sometimes also in a broader meaning: a surrounding area of a church.

Taking up the aforementioned studies could make it possible to determine the causes, resulting in evolution of the role of contemporary stained glass pictures in the area of the sacral architecture, as well as stylistic and iconographic differences between them.

## References

- [1] Białkiewicz A., *Architektura sakralna. Między sztuką a rzeczywistością*, Sacrum et Decorum. Materiały i studia z historii sztuki sakralnej, 1/2008, 73-77.
- [2] Budyn-Kamykowska J., Pawłowska K., Stowarzyszenie Miłośników Witraży „Ars Vitrea Polona”, *Witraż w architekturze – architektura na witrażu*, Society for Stained Glass Art, 2011.
- [3] Buszko A., *Ewolucja myśli architektonicznej w sztuce sakralnej po reformach Soboru Watykańskiego II na przykładzie Krakowa*, doctoral dissertation, Cracow University of Technology, Cracow 2006.
- [4] Kostaszuk Romanowska M., *Narracje architektury czasów postmodernizmu*, Białostockie Studia Literaturoznawcze, 1/2010, 97-120.
- [5] Pyka H., *Treści religijne w twórczości witrażowej Wiktora Ostrzolka. Studium teologiczno-ikonograficzne*, doctoral dissertation, Opole 2009.
- [6] Rodziński S., *Współczesna sztuka sakralna – refleksje o jej istocie i przyczyny niepokoju*, Sacrum et Decorum. Materiały i studia z historii sztuki sakralnej, 1/2008, 46-50.
- [7] Rosier-Siedlecka M.E., *Posoborowa architektura sakralna. Aktualne problemy projektowania architektury kościelnej*, Wydawnictwo KUL, Lublin 1980.
- [8] Rożek M., Gondkova B., *Leksykon kościołów Krakowa*, Verso, Kraków 2003.
- [9] Wąs C., *Antynomie współczesnej architektury sakralnej*, Muzeum Architektury we Wrocławiu, Wrocław 2008.
- [10] Węclawowicz-Gyurkovich E., *Współczesna polska architektura sakralna w twórczości krakowskich architektów. Wybrane zagadnienia*, Kwartalnik Architektury i Urbanistyki, 41 (3-4/1996), 321-329.
- [11] Żychowska M.J., *Najnowsze polskie witraże sakralne*, Sacrum et Decorum. Materiały i studia z historii sztuki sakralnej, 1/2008, 124-138.
- [12] Żychowska M.J., *O. Piotr Cholewka – znany nieznanym*, Sacrum et Decorum. Materiały i studia z historii sztuki sakralnej, 4/2011, 120-127.
- [13] Żychowska M.J., *Współczesne witraże polskie*, Wydawnictwo Politechniki Krakowskiej, Kraków 1999.

ZBIGNIEW K. ZUZIAK\*

## A HOUSE AND A TERRITORY. IDEAS, VALUES, STRATEGIES

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### DOM I TERYTORIUM. IDEE, WARTOŚCI, STRATEGIE

#### Abstract

In this article, the territorial aspects of the idea of *tomorrow's house* are viewed from two perspectives; the theory of urbanism, and as a technical issue concerning the formulation of principles of a spatial policy towards the housing environment as well as respective planning techniques with particular reference to the code of practice developed in order to translate these policies into specific regulations and design guidelines.

In planning practice, concretizing the general rules of a spatial policy requires a reference to *structural urban units*. However, while defining their properties in spatial planning documents, we ought to pay more attention to the relationship between the architectural and anthropological attributes of this category of urbanized space and its impact on the utilitarian values of a place of residence. The author also indicates some interdependences between the land use planning techniques, applied as environmental policy tools dedicated specifically to urban structural units, and respective policy statements used in socio-economic planning to guide housing development in accordance with strategic goals. Certain similarities between these strategies are presented as are such theoretical concepts as *the architecture of the city*, *space syntax* or *the just city*.

*Keywords:* architecture of the city, anthropology of the city, urban unit, housing environment, spatial planning, spatial policy, urbanism

#### Streszczenie

W niniejszym artykule terytorialne aspekty idei domu jutra rozważane są z dwóch perspektyw: teorii urbanistyki i jako zagadnienie warsztatowe dotyczące formułowania zasad polityki wobec środowiska zamieszkiwania oraz technik zapisu ich ustaleń. W praktyce planistycznej konkretyzowanie ogólnych zasad polityki przestrzennej wymaga ich odniesienia do strukturalnych jednostek urbanistycznych. Jednak określając ich właściwości w dokumentach planowania przestrzennego, należałoby zwrócić większą uwagę na związek między architektonicznymi i antropologicznymi atrybutami tej kategorii przestrzeni zurbanizowanej i jej wpływ na wartości użytkowe miejsca zamieszkiwania. Autor wskazuje też na współzależności między techniką zapisu ustaleń polityki przestrzennej w układzie jednostek urbanistycznych i ustaleniami strategii rozwoju terytorialnego. Dostrzega powinowactwa tych strategii z takimi koncepcjami teoretycznymi, jak: architektura miasta, *space syntax*, miasto sprawiedliwe.

*Słowa kluczowe:* architektura miasta, antropologia miasta, jednostka urbanistyczna, środowisko mieszkaniowe, planowanie przestrzenne, polityka przestrzenna, urbanistyka

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## 1. Introduction

The starting point for the considerations presented in this paper includes the following five assumptions:

1. There are some causes which justify the introduction of changes in the principles and techniques of urban planning and designing which would lead to a radical redevelopment of cities<sup>1</sup>.
2. Such a challenge requires redefining the basic concepts of urbanism, especially rethinking mutual relations between the idea of *tomorrow's house* and urban categories relating to the notion of *territory*<sup>2</sup>.
3. Taking new *house and territory* type interdependences in planning methods and techniques into consideration is a serious task for spatial policy, both in its conceptual (political, social-economic, anthropological, functional-spatial, engineering and artistic) and instrumental layers.
4. The interdependences mentioned in item 3 can be translated into relationships between architectural and urban strategies so as to lead to engineering solutions cohesive with *value networks*<sup>3</sup> which could be approximately defined on the grounds of the anthropology of the city for a given urban territory.
5. There is real probability that within systems of market economy and democratic society there will be conditions making it possible to introduce such changes – first in the experimental zone, then in the form of policies conducted on the scale of individual urban territories<sup>4</sup>.

In other words, the question about *tomorrow's house*, posed in the context of a reflection on the notion of *territory*, touches upon the basics of urbanism – the conceptual and technical matters relating to the philosophy of land use controls in urban space. This issue also recalls a number of questions of a technical and methodological nature which set the architectural criteria and strategies of building a house among the instruments of spatial policy. As a result, the tools of steering changes in urban space may influence the improvement of the condition of a housing environment more effectively, making it more harmonious and just.

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<sup>1</sup> Cf.: arguments concerning the role which can be played by city redevelopment in strategies of overcoming a crisis. Such argumentation may be exemplified by Laura Burkhalter and Manuel Castells' speech at the 4<sup>th</sup> International Conference entitled *The New Urban Question – Urbanism beyond Neo-Liberalism* organized within the International Forum of Urbanism (IFoU) entitled *Beyond the Crisis: New Urban Paradigm*, 2009, Amsterdam/Delft, *The New Urban Question – Urbanism beyond Neo-Liberalism*.

<sup>2</sup> The validity of this assumption is confirmed by conclusions from research on the experiences of modernism as well as analyses of the ideological premises of New Urbanism and designs being flagship examples of these ideas.

<sup>3</sup> This term refers to connections between values defined on the more or less objective areas that can be named as “the subject-matter layers” as well as on the ground where the differences between specific values – or value systems – express themselves as conflicts between different interest groups.

<sup>4</sup> The term ‘urban territory’ is used in order to emphasize that one should go beyond the city while considering the house-territory relation.

## 2. The Idea of a House and a Value Network

After the decline of the modernist revolution, there were a lot of concepts associating innovative ideas for a house with visions of the city of the future. Let us at least mention proposals known as *the ecological house and the ecological city* and *the smart house and the smart city* as well as a series of other projects creatively matching the ideology of New Urbanism or the doctrine of sustainable development. It seems, however, that in the respect of boldness, momentum, versatility, impact and architectural maturity, these concepts do not equal Le Corbusier's ideas and works. By no means does this comment aim to challenge the rightness *this doesn't work here, consider changing to something like quality or reliability* of many critical assessments which addressed the results of his creativity, rather, to draw attention to these aspects of modernism which make us treat this movement as a significant civilization project. Obviously, there is no room here for analyses and arguments justifying this opinion. However, it is appropriate to emphasize again one of the aspects of modernistic ideology concerning the relationships: *a house and a territory*. The reason is that a critical analysis of the relationships between these elementary categories of architecture and urbanism so far makes a good starting point for creating concepts whose effects may be new *urban constructions*. Phrase: "urban construction" is defined here as a set of spatial and functional elements which create the framework structuring housing environment in accordance with principles recognized as more appropriate for the contemporary condition of both a community and an individual. An individual who is searching for his/her own *place-territory* in the mosaic of expanding territories of urbanity *grammatically, this is not a valid sentence, meaning unclear*. In this way, we touch upon the territorial aspects of the idea of a house. To a certain extent, a look at a house through the prism of a territory joins the trend of philosophical and anthropological narration regarding the 'insideness' and 'outsideness' of a house. The notion of *territory* appears in a double meaning here – as *the outsideness of a house*<sup>5</sup> and as the subject of a territorial policy. These two perspectives encounter each other in areas to which the notion of *an urban unit*, i.e. a quasi territory used in the planning and management of the development of a city, refers.

A house is a cultural form<sup>6</sup> and an engineering structure. It makes a special kind of 'elementary particle' within the housing environment to which values are attributed concerning such notions as: forms of ownership; parameters of location; standards of engineering solutions; architectonic form; social behaviors; economic and anthropologic values. These latter values especially seem to draw increasingly the attention of researchers on the architecture, including both urban and suburban housing environments. Studying urban literature from previous decades, we can notice a kind of anthropological offensive. Reading publications on the anthropology of the city opens new research perspectives. In this context, in ruminations on the urban dimensions of *tomorrow's house*, it seems advisable to complement engineering, artistic and functional premises for building its form

<sup>5</sup> Cf. Emmanuel Levinas' comments on the household; E. Levinas, *Całość i nieskończoność. Esej o zewnętrzności*, PWN, Warszawa 1998.

<sup>6</sup> A cultural form is one with which man expresses his attitude towards nature as well as his aesthetical preferences and abilities to solve functional, constructional and economic problems.

with some elements of discussion on *the anthropology of an urban form*. This, in turn, casts new light on the question of the relationships between the values of a household, urban tissue and urban units *please make sure that my corrections here have not changed your intended meaning*.

Choices concerning the form of a house, the location of a household and the activity of residence refer to a relatively wide range of values. They are preceded by a more or less insightful analysis of the attributes of location and the corresponding costs even though these apparently rational decisions actually reflect, to a large extent, ideas and expectations closer to the world of dreams and intuitive movements being an expression of individual attitudes towards the spatial environment and social behaviours. Looking at a house from the philosophical perspective, one can notice a certain curiosity. Emmanuel Levinas writes about it, *In the system of objectives where human life proceeds, the house takes a special place*<sup>7</sup> but then he explains his idea with the following sentences: *However, the special role of a house does not consist in the fact that it makes the purpose of human activity, but in the fact that a house is its condition and beginning in this sense. Concentration necessary to perceive and transform nature so that it could present itself in the form of a world is realized as a house*<sup>8</sup>.

As the smallest portion of a territory matching the existential space of a family as well as, more and more frequently, a one-person household, a house communicates with its surroundings creating complicated geometries of *relational space* responding to physical connections and contacts realized by means of an ICT network and symbolical *consider changing to 'symbolic' as it is in much more common usage* relationships. Networks of these connections are sometimes expressed in a graphical shape (techniques of visualizing/notating a relational space) but we can imagine that there will be models making it possible to describe these kind of relationships as *value networks* in the immediate future. The concept of a value network binds the idea of a house with the category of a territory. It can be useful in work on building the methodological bases for strategic urbanism<sup>9</sup>. The notion of an urban unit plays a similar role in this task.

### 3. A House and Urban Units

In the field of urbanism, factors influencing various categories of the value of a house can be expressed by the set of parameters ascribed to specific urban structural units. It results from the following way of thinking: a house is the basic *ingredient* for building the main types of urban tissue. They constitute defined configurations of architectonic forms and units of urban territory whose properties should be taken into account while settling the general rules of a spatial policy. This methodological postulate should be respected on three levels of policymaking. On the higher level, it should be observed while formulating housing policy guidelines for the entire city – or the whole municipality – within the process of making

<sup>7</sup> Cf. E. Levinas, *op. cit.*, 173.

<sup>8</sup> *Ibidem*, 174.

<sup>9</sup> The author presented some assumptions of strategic urbanism in his book entitled *O tożsamości urbanistyki*, Cracow University of Technology Press, Krakow 2008.

so called preparatory land use plan known in Poland as *the study of the preconditions and directions of development*. Secondly, these typological criteria of urban fabric and housing environment have to be taken into consideration in analyses carried out locally for the purpose of a local development plan. And finally, on the lowest level of hierarchy often used for the description of the decision making process, these issues should be analyzed or before issuing a planning permit. The most important types of urban units are presented in Tab. 1.

Table 1

## Types of urban units

No.	Symbol	Type of urban unit	Criteria of distinguishing, their function/role in managing the city and steering changes in its spatial development; sample names of units
1	H	Historical	Acquired on the basis of historical research, materials making it possible to define the borders of former settlement units and the responding historical urban layouts; these units play a significant role while formulating the directions of a restoration policy (e.g. old towns/historical districts).
2	A/S	Anthropological/social	Social bonds, neighbourly units and other types of housing environment units defined and designed for perceiving and stimulating forms of contact for social integration and other behaviours being the subject of research on the sociology and anthropology of the city <i>This sentence is much too long and is therefore confusing and unclear; it also contains grammatical errors. I suggest that you rewrite this as at least two separate sentences.</i>
3	M	Morphological	Morphological types of urban tissue; types of buildings distinguished on account of their architectural and urban form.
4	F/LU	Functional/land use	Prevailing type of land use; classification of urban units/neighbourhoods/functional areas commonly included in spatial planning, especially in its modernist formula; contemporarily, this type of zoning is frequently suppressed by multi-purpose units distinguished according to the degree of diversity of the forms of land use.
5	A-L	Architectural-landscape	Architectural-landscape <sup>10</sup> ; cf. also morphological types of units.

<sup>10</sup> The author of this notion: *architectural-landscape unit* and the method of demarcating it was Prof. Janusz Bogdanowski.

6	A	Administrative	Administering/managing defined urban complexes; estates, districts.
7	R	Registration	Statistical functions of a unit of urban space to which data acquired during censuses and other statistical data about territorial units are referred to.
8	STR	Structural	Planning functions: 'tuning' the general rules of spatial policy formulated on the scale of a city to particular features of 'a portion of territory' related to a given local community.
9	S	Strategic	Referring the directions of a developmental strategy, and operations related to their implementation, to space units matching these actions (areas of strategic programmes and projects).
10	D	Developer	Urban units defined for the purpose of specific housing development projects both private and public/private.
11	GIS	Geographic information systems	Spatial units defined in order to gather information resources and manage databases on a land/space included in geo-information systems used in city management.
12	IM	Infrastructure management	Units/areas designated with particular reference to the ranges of the management/areas of basic communal services particularly technical infrastructure and exploitation systems concerning water-waste management, power industry etc.
13	PS	Public services	Ranges of basic public services, e.g. parishes, deaneries, post office precincts, fire brigades, the police, education, health etc.
14	C/S	Cadastral/Surveying	Criteria applied while building an information system associating cartographic materials with data concerning forms of rule, exploitation etc.; cf. also GIS.

From among various types of urban units, structural urban units are of special importance for defining the principles of spatial policy. In planning practice<sup>11</sup>, they are distinguished according to historical, morphological, functional and spatial criteria as features of urban tissue as well as the character of landscape forms. Thus, we can define a structural urban unit as a 'portion' of urban space distinguished on account of the configuration of the foregoing attributes (mostly morphological) assuming that such demarcation of a territory

<sup>11</sup> E.g. preparing studies of the conditions and directions of the spatial management of communes (exemplified by communal studies for Wrocław, Poznań, Katowice or recently Kraków).

can be helpful in interpretations of the spatial structure of a city and thus useful for clarifying urban concept in structural terms. On this account, in the characteristics of a structural urban unit, we must define such elements crystallizing an urban structure as public places as well as basic functional and compositional problems influencing the evaluation of the developmental potential of this territory.

#### 4. The Strategies and Architectonics of the City

Considering the technical aspects of the *house-territory* interdependence, we should also ask about its relationships with the techniques used planning in planning for territorial development. We have to take into consideration the fact that techniques used in spatial planning and urban design differ substantially from the techniques used in socio-economic planning – both strategic and operational. This issue will gain importance with the progress of work on the introduction of a model of integrated planning. In this new planning formula, both written policy statements and respective graphic/cartographic notations: maps, diagrams, conceptual sketches and other forms of visualizations characteristic for spatial planning must be more coordinated with the techniques of notations used in strategic planning. In this case, strategic urban units defined in a preparatory land use plan will become a frame of reference for information and settlements within the policy of territorial development recorded in communal strategic documents. This task is related to three kinds of planning activities. They could be described with the following keywords: aggregating, tuning, configuring<sup>12</sup>. In this case, ‘aggregating’ means grouping urban units according to the main structural areas in the city, such as its centre, suburban zone or middle zone (dominated by estates built in the modernist period) with separated junction areas in the city centre and other ‘urbanity nodes’ forming the polycentricity of an urban structure. ‘Tuning’ refers here to a phase of conceptual activities where urban units receive actions responding to defined types of urban strategies<sup>13</sup>. It consists of mutual tuning of the distinguishing features of a given unit with suitable conceptual assumptions for a general strategy of the development of a city that can be expressed in spatial categories. In this sense, we can talk about the ‘strategic tuning’ of a concept relating to the spatial management of the city. At this development stage in the conceptualization of an urban strategy, there should be another adjustment of general ideas and solutions – as well as strategic urban projects – proposed for the whole city to the local preconditions and local guidelines defined in a preliminarily land use plan. We should also check how – after such a tuning – these project can be *configured* vis a vis a logic of urban development process. ‘Configuring’ refers also to the process of grouping projects into larger packages so as to enhance the logic of connections between specific projects. This – in turn – may increase the probability of gaining synergic effects.

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<sup>12</sup> Thus, this authorial proposition of an outlined method can be acronymed ATC.

<sup>13</sup> Five types of strategies are suggested: 1) construction of polycentricity, 2) integration, 3) conversion (revitalization, regeneration), 4) conservation and rehabilitation, 5) construction/articulation of identity.

All the foregoing comments on structural areas, strategic projects and typologies of urban structural forms<sup>14</sup> applied in urban design, spatial and strategic planning ought to be complemented with a commentary on the relationships between new territories of urbanity. They should also correspond with proposals of morphological systematic of urban tissue in the light of such theoretical notions as “the architecture of the city” or “space syntax”. For instance, following Aldo Rossi<sup>15</sup>, Bill Hillier [3], Peter Calthroe [2] or Anne Vernez Moudon [5], we can ask about the possibilities of complementing their research on the morphological types of urban tissue and geometries of networks structuring urban tissue<sup>16</sup> with motifs concerning:

- 1) architectural strategies matching urban operations carried out in relation to the implementation of a strategy for the development of a city;
  - 2) anthropological questions related to the social results of implementing these operations.
- However, discussing these questions in detail is a theme for a separate publication.

## 5. Conclusions

This article includes some questions in the field of urbanism with which the problems of shaping a housing environment situates itself in the trend of a theoretical reflection on the oddities of two categories of relations. One of which concerns the logic of connections between normative postulates defined as the principles of urban design and the complexity and uniqueness of the formal structure of an individual urban project. These questions can be treated as an incentive for an interdisciplinary discussion on the universality and validity of postulates concerning urban regulations introduced on the basis of research on a collection of individual projects. The other type of relationship concerns the circumstances under which artistic creation, expressed in the categories of urban design, is subordinated to the rules established by planning regulations and design guidelines. In other words, it is a question how real it is to adjust subtle relations of architectural and urban form defined at the conceptual stage to the rigors of urban planning. To some degree, this “technical problem” can be formulated as a “language problem” in a sense that through administrative procedures the language of architecture and urbanism is confronted with the ‘soullessness’ of formal and legal formulations used by the planning language: both in the case of spatial planning and operational urbanism. In practice, this problem can be equalled to questions about formal and legal solutions putting decisions within urban design into three kinds

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<sup>14</sup> Cf. classifications according to the kinds of exploitation, the types of structural forms or divisions of the territory of a city into auxiliary types: estates, districts, neighbourhoods, precincts etc., applied in spatial planning, distinguished on account of the necessity to administer and manage defined zones of urban life as well as to collect data/information responding to these zones (e.g. census districts and other statistical units); cf. Tab. 1.

<sup>15</sup> Cf. A. Rossi, *Architecture of the City*, MIT Press.

<sup>16</sup> For instance, according to Bill Hillier, configuration of a spatial network is the basic driving force which shapes models of mobility and, as a consequence, the generator of changes in the geometry of a street network.

of decision-making systems and the responding characteristic features of the notional apparatus. We mean three types of procedures:

- 1) decision-making procedures responding to the economic aspects of the investment process;
- 2) “legislative” – accompanying the elaboration of local spatial management plans;
- 3) administrative – related to the procedures of issuing or rejecting of planning/building permits.

In each of these three types of procedures, premises concerning urban composition, formulated by the author of a design, are subordinated to substantial modifications. These modifications – in turn – reveal two types or categories of problems associated with territorial planning and its functional relations with urban design and housing development. The first category can be described as relations between projects and plans and refers mostly to the differences between grasping the concept of territory in planning and design. The second one refers to methodological and procedural issues of formulating design guidelines for housing environment. Both categories of relationships lead to the question about the role urban design plays in the practice of shaping public spaces in European cities and the place this important instrument of spatial policy takes in contemporary European theories of urbanism.

## References

- [1] Batty M., *Hierarchy, Scale and Complexity in Urban Design*, [in:] T. Haas (ed.), *New Urbanism and Beyond. Designing Cities for the Future*, Rizzoli, New York 2008.
- [2] Calthrope P., *The Urban Network*, [in:] T. Haas (ed.), *New Urbanism and Beyond. Designing Cities for the Future*, Rizzoli, New York 2008.
- [3] Hillier B., *The New Science of Space and the Art of Place. Toward a Space-led Paradigm for Researching and Designing the City*, [in:] T. Haas (ed.), *New Urbanism and Beyond. Designing Cities for the Future*, Rizzoli, New York 2008.
- [4] Le Corbusier, *W stronę architektury*, Centre of Architecture, Foundations, Warsaw 2012.
- [5] Moudon A.V., *Field building and Urban Morphology: A Challenge for the Next Generation of Urban Designers*, [in:] A. Graafland, L.J. Kavanaugh (eds.), *Crossover, Architecture, Urbanism Technology*, 010 Publishers, Rotterdam 2006.
- [6] Zuziak Z.K., *O tożsamości urbanistyki*, Cracow University of Technology Press, Krakow 2008.





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