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Electronic version

URL: <http://journals.openedition.org/ambiances/640>

DOI: 10.4000/ambiances.640

ISSN: 2266-839X

Publisher:

Direction Générale des Patrimoines - DAPA - MCC, UMR 1563 - Ambiances Architectures Urbanités (AAU)

Electronic reference

Anetta Kepczynska-Walczak and Bartosz Marek Walczak, « Built heritage perception through representation of its atmosphere », *Ambiances* [Online], 1 | 2015, Online since 12 September 2015, connection on 03 May 2019. URL : <http://journals.openedition.org/ambiances/640> ; DOI : 10.4000/ambiances.640

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Introduction

- 1 Authors of the paper represent two different research divisions of the Institute of Architecture and Urban Planning at the Lodz University of Technology, namely: the Computer Aided Design Unit and the Heritage Conservation, History of Architecture and Town Planning Unit. The first researcher is interested in the use of information technologies in visualisation and reconstruction of built heritage, while the second one focuses on preservation of cultural values and contextual architectural design in urban areas.
- 2 The outcomes of the authors' recent research, professional and didactic experience allowed to indicate that there are two important issues related to both - the visualisation and the heritage conservation and design. First, to make a local society and an investor convinced and familiar with proposed architectural solutions. Secondly, to draw public attention to the issues related to the protection of cultural values, which in consequence results in continuity of heritage landscape and sustainable development.
- 3 Such an approach means that it is neither the geometry nor the accuracy of shapes and materials, which is the most important. On the contrary, it is an overall visual effect that appeals (or not) to the audience. It is observed, that technical drawings and in-depth analyses are not powerful enough to approach the general public, and this is the reason why photorealistic presentations have become so popular in communicating with the laymen. What is more, a final result of any architectural intervention depends on a number of issues, which influence perception of the urban landscape - its image refers

also to the invisible values. The problem was given a poetic interpretation by Italo Calvino in his book *Invisible Cities*. This might be illustrated by the phrase:

cities, like dreams, are made of desires and fears, even if the thread of their discourse is secret, their rules are absurd, their perspectives deceitful, and everything conceals something else (Calvino, 1978, p. 44).

- 4 Because of its approach to the imaginative potentialities of cities, the book has been used by architects and artists to visualize how cities can be, if the human imagination is not necessarily limited by the rules of physics or the limitations of modern urban theory. It offers an alternative approach to thinking about cities how they are formed and how they function.
- 5 The values discussed above may be enriched by the social meaning of a monument (considered not only as a building or a site). This is, however, usually derived from the importance of the historic personalities and events which had an immediate relationship with the monument. An objective evaluation of the significance of historic personalities and events is not a task for heritage institutes but the social connotations may be taken into consideration while deciding on the priorities of protection or restoration of a specific monument. Furthermore, the consideration may also be given to the significance assigned to the monument by public opinion within the area.
- 6 Some concepts presented by contemporary researchers - including Gregory J. Ashworth (Graham, Ashworth, Tunbridge, 2000) - go even further. According to them, it is not an object itself regarded as heritage but it is rather a message encapsulated in this object directed to the audience. Object remains the same, while the message can be changed. What is more, people can perceive it at different levels and planes. Heritage status may vary along with the views of citizens. Thus, the essence of heritage is a process of communication, in which individual objects act as vehicles of ideas. This obviously means that there are some "elusive" intangible factors that make people willing to protect some objects and not others.

Genius loci

- 7 A society's approach to its heritage raises the issue of emotional links with the environment and the feeling of *genius loci*, or sense of place. The term derives from the Roman religion, according to which it represented the protective spirit of a place. The historical concept of *genius loci* survived until modern times but its sense has evolved gradually. This transformation consists in going away from the natural world towards the artificial one (i.e. transformed or created by a man). In modern times this concept was first adopted in the 18th-century English landscape design. The principle indicating that any design should always be adapted to the context in which it is located emerged from the poetry of Alexander Pope (Davis, 1966), who considered *genius loci* as an important, intrinsic part of a landscape. He raised this issue, for example, in the essay on gardening in the Guardian in 1713 and in the letter to Lord Burlington in 1731.
- 8 In the context of modern architectural theory, *genius loci* has profound implications for place-making, falling within the philosophical branch of phenomenology. The foundations of such an approach were laid by Christian Norberg-Schulz, who indicated that each space was a resultant of the concrete realism defining and effecting the place,

as well as the certain phenomena that each space possessed, established by countless aspects of the environment in which the space was located (Norberg-Schulz, 1979).

- 9 This is concerned with the physical and cultural characteristics of each space that evolve through time and are evoked when this space is recalled. Therefore, this is a quality that contributes to the identity of a place and enables distinguishing between one place to another. Moreover, strengthening this sense of place can then be seen as a means to establishing sense of identity and belonging.
- 10 Because of its metaphysical, abstract character and internal complexity, this phenomenon escapes scientific analysis, becoming very difficult to find and to define. However, the importance of the sense of place cannot be underestimated because this eventually leads to a better quality of life as one is able to relate to one's environment with a feeling of security and satisfaction, which has been proved by a number of research studies, mainly in Australia and the USA (U.S. EPA, 2002; Mohan and Twigg, 2007; Smith, 2011).
- 11 The loss of the urban heritage can sever the ties which people often have with their past and threaten the cultural values and traditions of the local built environment. Thus, even though cultural heritage resources can be classified according to building type or function, each individual site may still be qualified for its specificity and uniqueness, its *genius loci*.
- 12 Such an approach refers also to the individual, subjective understanding and perception of any place. This problem was raised by Kevin Lynch in his famous book *The Image of the City* published in 1960. Using three disparate cities as examples (Boston, Jersey City, and Los Angeles), Lynch reported that users understood their surroundings in consistent and predictable ways, forming mental maps with five elements: paths, edges, districts, nodes, and landmarks (Lynch, 1960). Furthermore, similar assumptions laid foundation for the recommendation on the protection of the historic urban landscape (HUL) adopted during the UNESCO General Conference in 2011. The document stresses that urban areas are one of the most abundant and diverse manifestations of our common cultural heritage, shaped by generations and are a key witness to the efforts and aspirations of mankind throughout history (UNESCO, 2011).
- 13 The economic arguments for adaptive re-use of buildings have been enhanced by the growing awareness of local identities (as a result of European unification) and the concept of sustainability (as a result of growing ecological consciousness). In this prospect, it is possible to say that the industrial decline in many European regions during the late 20th century has left a series of relics that represent not only an economic resource but also an environmental asset. This may be achieved through the protection of *genius loci* and sustainable development of these areas.
- 14 Taking into consideration the issue of visualisation of *genius loci*, it seems reasonable to discuss the most suitable methods and techniques for achieving the intended results. Are there any optimal means of its expression? We can observe a dynamic development of digital technologies, but it has not been proved so far that they are the best solution in this respect. What is more, the controversial role of IT in the field of architectural conservation was stressed by some authors (e.g. Ashton, 1995). The computer-aided drawings were often being considered by some traditionalists too mechanical and sanitised, and therefore inappropriate for such application. However, recent experiments have proved that it is possible to include and adjust parameters essential for the

perception, such as fog, transparency, and facade-textures (Stellingwerff, 2003). Even the viewpoint is of importance for the perception of environment (Radaelli, Salerno, Villani *et al.* 2011). Current technologies allow to extend our perception beyond visual stimuli and therefore reinforce the perception of reality. So far, there is notable increase in the use of sensory effects in the entertainment industry - mainly during screenings in the cinemas where effects such as wind, rain, shock, sprayed fragrances, strengthening the perception of the scenes have become a commonplace.

- 15 The above-mentioned issues are crucial for visualising built heritage, since not only shapes and dimensions are responsible for the proper understanding of the place. The intangible values are also of great importance. This is the main topic of the paper, which aims at presenting various methods and techniques in reconstructing, representing and communicating heritage buildings and areas.

Atmosphere

- 16 Another important issue related to the perception of the environment is its atmosphere. In architecture and spatial design, this term is usually referred to sensorial qualities of a space. This is based on the concept of architectural and urban design which aims not only at function and aesthetics but also at experience. One of the best known architects who discusses this subject is Peter Zumthor. He perceives the atmosphere of a space as a mixture of mood, feeling of presence, harmony and beauty (Zumthor, 2006).
- 17 In this context it is necessary to mention works of Gernot Böhme, a German philosopher, who discussed this subject widely. Böhme strived to expand the philosophical aesthetics thematically (Böhme, 2001). He developed a general theory of perception, according to which design, nature and art should stand in the centre of attention. The interpretation cannot be exclusively intellectual. The emotional component should be included as well. This is how Böhme explains it in his own words:

In der Wahrnehmung der Atmosphäre spüre ich, in welcher Art Umgebung ich mich befinde. Diese Wahrnehmung hat also zwei Seiten: auf der einen Seite die Umgebung, die eine Stimmungsqualität ausstrahlt, auf der anderen Seite ich, indem ich in meiner Befindlichkeit an dieser Stimmung teilhabe und darin gewahre, dass ich jetzt hier bin. [...] Umgekehrt sind Atmosphären die Weise, in der sich Dinge und Umgebungen präsentieren (Böhme, 1995, p.96).¹
- 18 The philosopher has also expanded on the architectural atmosphere. He considers the nature of a space as the physicality of an actual space and the atmospheric qualities that are embedded within a space. This means that it is possible to experience it only by physical presence. According to this concept, photography, written articles and the interpretation of other viewers of a space cannot compare to individual experience and interaction in given spaces (Böhme, 2005). This rises a challenge for further research whether it is possible to deploy various media to represent the place in such manner that will evoke emotions and feelings usually restricted to those who visit the site in person.

Visual communication of sustainable solutions

- 19 The first case study is based on an urban renewal project proposed for the historic Italian town of Caprarola. Caprarola is situated in the province of Viterbo, surrounded by a range of volcanic hills known as the Cimini Hills, some 60 kilometres to the North of Rome. It is

famous mainly for the residence of cardinal Alessandro Farnese (the future Pope Paul III). The residence known as the Villa Farnese is situated above the town and dominates its surroundings. It was built in the 16th century, according to a project of Antonio da Sangallo the Younger and Baldassare Peruzzi, two of the most important architects of the time. The works were continued by Giacomo Barozzi da Vignola during the period 1556-1573. The result is one of the best examples of so-called *palazzo in fortezza*. To provide the approach to the Villa Farnese a new main street was cut through the Medieval town of Caprarola. The street is nicknamed Via Diritta (now Via Filippo Nicolai) for its linear layout centered on the main façade of Farnese residence. A construction of the new road with its five equidistant squares modified an old urban structure and created an opportunity for the development of new buildings. As a result, Caprarola remodelled by Vignola is a complex of an extraordinary unity of components, from landscaping, through the town planning, to the architecture.

- 20 In 1995 an Urban Design Task Force was organised in Caprarola by the Prince of Wales's Institute of Architecture. It was focused on the five small piazzas along the principal street, which lost their spatial and social meaning in course of use and alterations over four centuries that passed since their creation by Vignola. The aim of the Task Force was therefore to revitalise these places and make them more suitable for human existence, following the concepts of traditional urbanism promoted by Prince Charles, and defined by himself with the following principles: 1. The Place - 2. Hierarchy - 3. Scale - 4. Harmony - 5. Enclosure - 6. Materials - 7. Decoration - 8. Art - 9. Signs & Lights - 10. Community.
- 21 It is not surprising then, that particular attention was paid to the need for retaining local individuality, maintaining a balance with nature and society that has been developed over many generations (The Caprarola Project, 1997). So, the aim of the Task Force was to solve particular problems of a local community, such as traffic management or redefinition and rehumanisation of public spaces. Traditional design approach was followed by similar representation methods. It is worth to mention that some of the participants were obviously under the influence of drawings of Leon Krier who acted that time as a mentor for Prince of Wales and his School (Krier, 1998).
- 22 The project started with the observation of the town and making sketches. Students were distributed throughout the town and asked to catch the atmosphere of the places. It created opportunities for insightful observations and better understanding of the character of sites, which were to become a subject of regeneration. It evokes the Gestalt theory - psychological point of view that says it is necessary to consider the whole of something, since the whole has a meaning apart from its individual elements, as it was shown, for example, by Julian Hochberg in his work on representation of motion and space (Hochberg, 1986). Additionally, a meeting with local authorities enabled better understanding of the problems to be solved within the task.
- 23 The local society took notice and many people were attracted by an exhibition of paintings, sketches, drawings and models the project concluded with. This was a crucial moment, since looking at representations provoked the observers to decide whether the proposal was "good" or "bad" (illustration 1). In other words, the perception and understanding were the key part of social participation in urban and architectural design process (cf. Baltes-Brkljac, 2011). It is not obvious, however, what methods should be deployed to communicate design solutions to public. Paradoxically, it appeared that traditional representations helped to achieve that, which proved words of Francis D. K. Ching that observing drawings makes people thinking (Ching, 2000).

Illustration 1: Piazza Nuova in Caprarola, “before” and “after” the intervention

Traditional hand drawings were adopted for the purpose of the project, matching the aim to keep the particular atmosphere of the town.

Source and copyright: Anetta Kepczynska-Walczak, Bartosz Marek Walczak

- 24 In this respect the project was successful in terms of design quality, visual communication and strengthening civic pride. Moreover, the exhibition explored the connection between sustainable solutions and artistic skills which helped to present them. In fact, the results of the task force were considered as one of the best and most complete projects promoting traditional urbanism, and became a basis for urban improvement conducted by local authorities.

The lost “spirit of place” recreated

- 25 The second case study deals with the problematic appearance of post-industrial areas. The issue requires more detailed explanation since these historical buildings and sites have not been commonly accepted as a part of the cultural heritage.
- 26 Many European towns and cities emerged throughout the 19th century as the result of the Industrial Revolution. The challenge now, at the start of the 21st century, is to adapt those towns and cities, often facing problems caused by the industry decline, to a new viable economic life. This entails creating the goods and services that people need, and making the best use of the resources available. Successful revival of a declining industrial region results from the involvement of the state and/or highly qualified persons. Regeneration is especially difficult as different aspects (economic, urban, spatial, etc.) are usually overlapping. Dangers facing old industrial premises are much more serious than those affecting other old buildings, mainly due to social problems and depression in the local dependent economy. Regeneration, however, has never been an easy process and

there are major spatial problems associated with the vast spaces remaining in many mills and factories.

- 27 Particularly in depressed areas, owners of historic buildings often do not realise that alternative uses are possible. Once the production ceases in the factory or the local railway station is closed due to the withdrawal of train services, it is assumed the building becomes useless. It requires imagination not to condemn a dilapidated building. Therefore, despite the growing interest in industrial heritage, mills, warehouses and many types of factories remain unexploited. Many European countries are virtually studded with historic buildings of this sort. In fact, they may have a role to play in rebuilding (strengthening) the local identity, since the aim is to preserve living environments, not merely built-up sites. Therefore, it must be recognized that the gradual disappearance of various facets of the cultural heritage is a serious blow to the “spirit of place” and the coherent atmosphere of urban environments. Many urban centres are, moreover, important parts of local or national history. Thus, industrial townscapes should be protected as parts of urban images. On the other hand, a city is a place in change, which has never ceased to evolve. At the same time, the present-day changes should not, however, entail the loss of a local identity which is to a certain extent connected with urban environment. It can only be achieved through sensitive design that unifies existing values with the needs of a modern development. Thus, the real question is not whether a town has a heritage. It is how much people appreciate it, and use it as a creative force.
- 28 The question of what is to become of old industrial buildings is a major problem in Lodz, once the largest textile production centre in Poland and one of the most important in Europe. As mentioned above, industrial heritage can be an asset also in terms of contribution it can make to the *genius loci* and sustainable development. Thus, industrial heritage presents a great challenge and opportunity for Lodz, its community and urban environment. However, if a building is not considered to be of any particular architectural merit, and the decision to convert is taken mainly on economic grounds, alterations may well be of a quite drastic nature. The final result can appear as an interesting, even attractive building, but it will not necessarily bear much resemblance to the original structure. Such an approach provides a viable method of dealing with some industrial buildings. This should not, however, be generally recommended. When such bold transformations happen too often, then there may be a risk of losing the *genius loci*, since towns or group of buildings are more than the sum of their parts. Moreover, the result often provides an unauthentic, sanitised version of the past.
- 29 One of the most interesting and valuable industrial sites in Lodz is Ksiezy Mlyn - the main part of the Karol Scheibler’s industrial complex developed in the years 1855-1921. The whole area comprises approximately 500 hectares of land on the outskirts of the very centre of the city. The complex consists of large production buildings, owners’ residences, workers’ houses, shops, schools, hospitals, and even a farm. The site is of an outstanding historic value and authenticity. It also has a special significance for the identity of the local community. Ksiezy Mlyn is one of the most important sites of this type in Europe, comparable with such complexes as for example Saltaire in England and Crespi d’Adda in Italy (Walczak, 2010).
- 30 The focal point of Ksiezy Mlyn is a huge spinning and weaving mill built in 1873. The central projection of the mill with a clock and a bellcote became a monumental southern closure of the 200m long and 24m wide avenue. Along the axis the two rows of workers’

houses were erected, while the third one was located along the western frontage of Przedzalniana Street. Altogether there were 18 two-storey workers' houses with auxiliary buildings (coal sheds, laundries, etc.) and the dwellers' allotments. The third element of the village was the industrialist seat in the form of a city villa surrounded with a park.

- 31 The Ksiezy Mlyn settlement was a jewel in the crown – the most impressive part of the whole Scheibler's enterprise stretching over the distance of three kilometres: from the principal street of the city – Piotrkowska to the farming estate at the outskirts of Widzew suburb. The settlement followed a consistent, well-conceived project. The mill and the residential estate were parts of the same building scheme – the creation of a model village (Walczak, 2001).
- 32 After the collapse of textile industry in the 1990ties the area was neglected. Nonetheless, Ksiezy Mlyn has still preserved part of its unique charm of the old times. What is interesting, until now the social houses have been in use mostly by the same families whose ancestors worked in the factory! The village is one of the most important landmarks of Lodz – the symbol of the growth, prosperity, decline and revival of the textile metropolis. At the beginning of the 21st century the main factory building was converted into apartments and a lot of new investments have started.
- 33 So, taking into account such a rich history and transformation process of the site, Ksiezy Mlyn became a subject of a project conducted in the Institute of Architecture and Urban Planning at the Lodz University of Technology. It was focused on finding the best method for the commemoration of this city area (Kepczynska-Walczak, 2013). One of the goals was to recreate the spirit of the place. This issue laid the foundation for the students' project, the purpose of which was to develop a comprehensive presentation of Ksiezy Mlyn, which included: a 3D model of the whole complex; detailed 3D models of the most valuable heritage buildings (the managing director residence, a hospital, a factory and the school for the workers' children). The above-mentioned models were the basis for the development of mock-ups for self-assembly. There was also an interactive map created with descriptions of particular buildings and corresponding photographic documentation, illustrating their past and present state. Particularly interesting results were achieved through a series of views, recreating daily life in Ksiezy Mlyn, in the style of old postcards from the turn of the 19th and 20th centuries. To achieve that, the detailed 3D models of historic buildings were processed in graphic programs. The aim of the latter was not to represent the authentic appearance, but rather to recall the lost atmosphere of the place, which filtered through the sensibility of the authors, actually revealed the meaning of this site to young people. In this respect it is necessary to stress that the Scheibler complex had been irreversibly transformed either through the regeneration process or the post-industrial decline and abandonment. In other words, the outcome might be described as a sentimental journey through time. It was the lost "spirit of place" which was recreated, not the heritage buildings themselves (illustration 2.).

Illustration 2: Ksiezy Mlyn in Lodz

Daily life scenes from the past in the manner of old postcards. The encapsulated emotions towards heritage depict the *genius loci*.

Source and copyright: Computer Aided Design Unit, Institute of Architecture and Urban Planning, Lodz University of Technology

The built heritage depicted

- 34 A number of historic buildings - gems of local heritage were modelled and visualised to create their accurate representations. The project included models of the Scheibler Mausoleum at the Lutheran cemetery in Lodz (illustration 3), the mutual credit society institution (illustration 4), and the Richter villa - an excellent example of the 19th-century industrialist residence (illustration 5). It is worth mentioning here, that the Scheibler Mausoleum was listed by World Monument Watch as one of the most endangered sites in 2006 and, it is under renovation process now. This place has a unique atmosphere - it is unusual in each season and also time of the day. Moreover, Lodz citizens have a special attitude to this place. There is a tradition in Poland that at All Saints and Souls days people visit cemeteries to pray, light candles and put flowers on the graves of their relatives. It is observed they also visit the Scheibler's Mausoleum and light candles there. So, they perform a special respect to the past and sense of local identity.
- 35 Models were made on the basis of measured drawings and architectural surveys, therefore details were of highly defined precision. In all cases the same method was adopted. It is necessary to stress that the achieved realism reflects not only a representation of the geometry, but also a study of lighting, materials and textures. What is more, it was possible to confront the final outcomes with the real objects, which were

well-preserved buildings or in the course of conservation work aimed at restoring the original condition.

- 36 In the case of the Scheibler Mausoleum, particular attention was given to the appropriate light and the “worn-out” appearance, while the visualisations of the seat of mutual credit society and the Richter villa reflect the lush and splendour of the 19th-century interior design.

Illustration 3: A visualisation of the interior of the Scheibler Mausoleum in Lodz

Source and copyright: Computer Aided Design Unit, Institute of Architecture and Urban Planning, Lodz University of Technology

Illustration 4: Visualisations of the mutual credit society institution interiors

Source and copyright: Computer Aided Design Unit, Institute of Architecture and Urban Planning, Lodz University of Technology

Illustration 5: Visualisations of the Richter villa interiors

Source and copyright: Computer Aided Design Unit, Institute of Architecture and Urban Planning, Lodz University of Technology

Conclusions

- 37 Nowadays, with advanced information technologies available, there is a tendency for photorealistic or even hyper-realistic representations, which are generally considered as being easier to understand by laymen, including decision-makers, investors, and common people involved in local issues, voting for or against.
- 38 Such visualisations influence strongly the senses of the audience, and, in consequence, through the photo-realistic vision impose a solution, not giving a chance to own reflection. While, according to Professor Ching, drawings should encourage people to think. What is more, the most accurate image may not recall the unique atmosphere of the place. Particularly, in the case of a virtual reconstruction of no-longer existing structure, even the most photorealistic representation is an illustration of some assumptions and author's imagination rather than of a real building.
- 39 In other words, it is possible to admire the quality and precision of modelling without learning about the spirit of the place. On the contrary, the *genius loci* might be recalled with the use of less literal representations, or with hand drawings, which stimulate viewers imagination and sensitivity.
- 40 The above-mentioned observations are of crucial importance in the heritage conservation and the architectural design process in a historical context. In this respect, it is very important to capture the atmosphere of the place and preserve its intangible cultural values. To achieve that, it is necessary to maintain a balance of objectivity of forms and

subjectivity of experiences related to the place as described by Gernot Böhme, which certainly is a complex and difficult task, and requires further research. However, the notion that certain spaces evoke the same feeling among most of the people indicates that the atmosphere is experienced as quasi-objective. This may suggest that the representation of the past have not to be limited to austere, simplified forms used in a number of virtual reconstructions of historical structures such as for example the cathedral in Cologne (Lengyel, Toulouse, Schock-Werner, 2011). Though, it is necessary to stress that there is no better or worse method, since it depends on the defined mission and goal of a representation.

- 41 Another observation is that contemporary culture is based on the visual perception (cf. Szpocinski, 2009), in which not intellect, but senses are activated to experience the past.
- 42 Despite the adopted technique the most important seems not only to achieve certain level of accuracy but also to reflect various aspects of *genius loci* of represented sites, considered not only literally as a protective spirit of a place, but also as: emotional links with the environment; sense of identity and belonging; specificity and uniqueness; individual, subjective understanding and perception of a place.
- 43 It is, however, necessary to remember that to the date it is not possible to record and represent all the senses with the use of one single technology and method. Therefore, such projects should be complementary with some other recording methods including interviews with old residents, exhibitions of sound and smell of the historic environments, keeping historic elements in new plans etc.
- 44 To conclude, based on the analysed case studies it is possible to draw the following lessons:
 - Technical drawings and in-depth analyses are not clear enough to approach general public;
 - Not only shapes and dimensions are responsible for the proper understanding of a place;
 - The most accurate image may not recall the unique atmosphere of a place;
 - The intangible values are of particular importance;
 - *Genius loci* might be recalled with the use of less literal representations and hand drawings, which stimulate viewers imagination and sensitivity;
 - Contemporary culture is based on the visual perception in which not intellect but senses are activated to experience the past.

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NOTES

1. “In the perception of the atmosphere I feel kind of environment I find myself. Thus, this perception has two sides: on the one hand the environment that exudes a mood quality, on the other hand, I, as I participate in my mental state at this sentiment and the fact perceive that I'm here now. [...] Conversely atmospheres the way in which things present themselves and environments.”

ABSTRACTS

A holistic view on the city was shaped under the influence of such fundamental works as the *Image of the city* by Kevin Lynch (1960), or *Genius loci* by Christian Norberg-Schulz (1979). Especially the latter publication defined the identity of places as a resultant of a number of factors, including intangible values, which allowed better understanding of the complexity and richness of the city phenomena. Similar assumptions laid foundation for the recommendation on the protection of the historic urban landscape (HUL) adopted during the UNESCO General Conference in 2011. The above-mentioned issues are crucial for visualising built heritage, since not only shapes and dimensions are responsible for the proper understanding of the place. The intangible values are also of great importance. This is the main topic of the paper, which aims at presenting various methods and techniques in reconstructing and representing heritage buildings and areas. This is illustrated by case studies, based on the professional and didactic experience of authors. In particular, traditional hand-drawing techniques and computer-based visualisation methods are compared. Despite the adopted techniques the most important seems not only to achieve a certain level of accuracy but also to reflect *genius loci* of represented site. Both issues have to be well-balanced to achieve sustainable and satisfactory results.

Une vision holistique de la ville s’est constituée avec l’apport des travaux fondamentaux de Kevin Lynch (*L’Image de la cité*, 1960) et de Christian Norberg-Schulz (*Genius loci*, 1979). Cette dernière publication notamment, définit l’identité des lieux comme la résultante d’un certain nombre de facteurs, y compris les valeurs immatérielles, ce qui a permis une meilleure compréhension de la complexité et de la richesse d’une ville. Des hypothèses similaires ont posé les fondements de la recommandation sur la protection du paysage urbain historique (PUH) adoptée lors de la

Conférence Générale de l'UNESCO en 2011. Ces questions sont essentielles pour la visualisation du patrimoine bâti car les formes et les dimensions à elles seules ne permettent pas une compréhension complète d'un lieu. Les valeurs immatérielles sont également d'une grande importance. C'est le sujet principal de l'article, qui vise à présenter les méthodes et les techniques diverses de reconstruction et de représentation des bâtiments et des lieux patrimoniaux. Des études de cas fondées sur l'expérience professionnelle des auteurs illustrent ce propos. En particulier, les techniques de dessin à la main et les méthodes traditionnelles de visualisation sur ordinateur sont comparées. Cependant, malgré la technique adoptée, le plus important semble non seulement d'atteindre un certain niveau de précision mais aussi de réfléchir au *genius loci* des sites représentés. Ces deux questions doivent être bien mises en balance pour tendre vers un résultat durable et satisfaisant.

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Mots-clés: genius loci, patrimoine culturel, visualisation

Keywords: genius loci, cultural heritage, visualisation

AUTHORS

ANETTA KEP CZYNSKA-WALCZAK

Anetta Kepczynska-Walczak, Head of the Computer Aided Design Unit at the Institute of Architecture and Urban Planning, Lodz University of Technology (TUL), Poland. A member of the program council and a lecturer of the Postgraduate Studies in Conservation of Historic Built Structures at TUL. Graduated from TUL, the Prince of Wales' Institute of Architecture and the University of Strathclyde. In 2004 she defended a doctoral thesis "A model proposal for digitisation and recording data on architectural heritage in Poland based on European guidelines and best practices" at the University of Strathclyde in Glasgow. At the National Heritage Board of Poland she served as Representative Director for the Implementation of National Heritage Database, acted in the council for the implementation of the INSPIRE Directive in Poland and also acquired and coordinated a project CARARE funded under FP7.
anetta.kepczynska-walczak@p.lodz.pl

BARTOSZ MAREK WALCZAK

Bartosz Marek Walczak, Associate professor at the Unit of the Heritage Conservation, History of Architecture and Town Planning at the Institute of Architecture and Urban Planning of the Lodz University of Technology (TUL), Poland. Lodz Municipal Heritage Conservator. Lecturer at the postgraduate studies in heritage conservation at TUL and at the Warsaw University of Technology. Graduated from TUL, the Prince of Wales' Institute of Architecture (London) and the University of Strathclyde (Glasgow). Author and co-author of several projects of post-industrial re-use and urban regeneration. Author of more than 40 papers and books published in Poland and abroad, including the book on company towns in European textile industry awarded by Europa Nostra in 2013. Member of TICCIH and the Lodz Scientific Society.