Nauka

Jacek Gyurkovich*

orcid.org/0000-0003-2167-6424

Recipe for a New Life in Post-Industrial Areas Recepta na nowe życie terenów poprzemysłowych

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Słowa kluczowe: tereny poprzemysłowe w miastach, adaptacja, dziedzictwo urbanistycznoarchitektoniczne, parki, obszary śródmiejskie

Introduction

Industry absorbed by expanding cities, formerly located more peripherally, os currently often withdrawn from the occupied areas. Cities gradually absorb neighboring villages, grasslands, and undeveloped wasteland, introducing metropolitan functions there, most commonly residential houses and blocks of flats, whereas abandoned areas in city centers become attractive for developers [Węcławowicz-Gyurkovich 2020]. Many such places have been transformed into green areas, including parks. In our country, where there is still an insufficient number of available apartments, developers in similar situations erect buildings in such places—predominantly apartments, but also hotels, office buildings, or commercial and service buildings. Increasingly often, we observe a tendency in European countries to leave at least some post-industrial buildings and to adapt them to new programs and functions [Kobylarczyk et al. 2020]. The passing time teaches us that history verifies structures of architecture—which is decisive for the survival of buildings is their technical durability, preservation status, artistic values, and significance for local communities. Structures which have survived, more than once constitute an authentically valuable substance, which definitely needs to be preserved and protected [Gyurkovich 2019]. However, even in the 1990s, closed-down and transferred post-industrial buildings, most often dating back to

the nineteenth century or early twentieth century, used to be demolished so that new investments could be implemented in their place. Starting from roughly the second half of the twentieth century, attention started to be paid to leaving some buildings, not only for conservation-related reasons, but also due to the changing attitude of contemporary communities to industrial heritage. The diversity of conditions resulting from their location, terrain configuration, as well as the influence of the local culture of communities inhabiting cities, historical events and economic success and failures—all this makes each town and city possess a unique atmosphere and different identity. Already nearly 60 years ago Kevin Lynch emphasized the identity and diversity of European cities, and even individual districts thereof, in his book The Image of the City, published in 1960 [Lynch 2011]. Residents of Europe seem to have history and tradition in their genes, hence postulates to preserve historical elements, even post-industrial ones, deriving from the nineteenth or early twentieth century, are increasingly frequent.

The subject of protection of post-industrial objects preserved in European countries, often abandoned because they are no longer in operation, is the focus of the International Council for the Protection of Monuments and Historic Sites (ICOMOS) together with the International Committee for Heritage Conservation (TICCIH), also with the UNESCO Recommendation

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^{*} Prof. D.Sc. Ph.D. Eng. Arch., Faculty of Architecture, Cracow University of Technology

prof. dr hab. inż. arch., Wydział Architektury Politechniki Krakowskiej

on the historic urban industrial landscape [Council of Europe Framework Convention 2011]. Today, more than thirty years have passed since the the protection of post-industrial sites was first acknowledged, treating them as a valuable cultural heritage. In Great Britain, in the middle of the twentieth century, the term "industrial archaeology" was developed to help better and more widely understand the causes and effects of industrialization in Europe [Affelt 2013]. The year 2015 was declared the Year of Industrial Heritage in Europe as a summary of twenty-five years of the protection and preservation of industrial heritage on our continent. This anniversary was celebrated on the basis of resolution No. 1924 as Industrial Heritage in Europe, developed and adopted by the Standing Committee of the Parliamentary Assembly of the Council of Europe [Council of Europe Framework Convention 2011]. Among other things, it included the following: "The industrial heritage is constantly changing. Many industries that developed significantly in the nineteenth century were severely restricted in the second half of the twentieth century and their environmental legacy is at great risk. Processing industries of the Great Industry Age—coal, replaced by industries that arose in the twentieth century- automotive, aviation, electronics, food and the so—called leisure industry [...] Machinery is an essential part of the industrial Heritage and while much more difficult to maintain, it deserves to be preserved, as are buildings" [Industrial Heritage in Europe 2013].

Environmental problems and heritage in urban brownfields

The built urban tissue is made up of cubature objects with various functions, which achieve high intensity in downtown areas. The territorial expansion of cities resulted in the absorption of originally located more peripheral industrial areas, which became a burdensome neighborhood for multifunctional downtown structures, including the inhabitants and users of these areas. The pollution emitted by the industry caused the deterioration of the quality of the urban environment. Such a distribution of functions, dimensions and massing was sanctioned by the provisions of local law and construction law. Smog has accompanied cities for centuries [Izdebski and Szmytka 2018]. Today, urbanized areas are polluted to a large extent also by smog generated by vehicles—goods transport, public transport or individual cars. The quality of the living environment continues to deteriorate due to high-emission technologies and products used to heat buildings, as well as by the rapidly developing heavy industry from the midnineteenth century to today. In recent decades, we have seen the relocation of industrial plants that cause nuisance to the inhabitants outside the city center and attempts to use various methods of protecting the environment against harmful pollution.

Architecture is the art of shaping the surrounding space for human needs. Therefore, the idea of creating the best possible living conditions for city dwellers

seems to be necessary. We are aware that in urban agglomerations, various technological and spatial solutions are appearing with increasing frequency, which, in line with the philosophy of sustainable development, improves the quality of life for their inhabitants. Everyone agrees that broadly understood green, and above all trees and shrubs—absorbing carbon dioxide and producing oxygen, become necessary to improve the comfort of the inhabitants' existence. The currently common monitoring of the level of air pollutants allows for the identification of exceeding the permissible standards by several times not only in large cities, but also in medium-sized and smaller cities, as well as Polish health resorts—Zakopane, Szczawnica, Krynica. Data from Poland, whose cities are in the leading positions on lists of pollutants hazardous to health in Europe, are especially alarming. The inhabitants of our planet have been feeling the adverse effects caused by the rapid development of industry in Europe with increasing intensity since the beginning of the nineteenth century. The use of areas abandoned by the industrial sector for adaptive reuse may become an opportunity to improve the quality of life of residents. It becomes extremely important to pay attention to place-based identity and the preservation of the cultural values of a given area [Landorf 2009]. The problem of the reclamation of water, land, buildings and technical infrastructure is of particular importance in historical cities, in the context of preserving the traces of the past and tradition [Virtudes 2020; Grześków 2020]. Interdisciplinary scientific research indicates the directions of adaptation activities of existing buildings to new functions that help to maintain the tradition of the place. Contemporary trends are aimed at preserving for future generations not only structures of great historical value, but also those that have been used by industry and sometimes seem to be of little value [Sánchez-Montañés and Castilla 2020]. Adaptations of abandoned, demolished industrial plants to new cultural and service functions are becoming more and more popular [Nyka 2010]. The biggest problem with the protection of postindustrial heritage is the costs of adaptation and introducing new investments in post-industrial areas. Very often they are associated with the elimination of pollutants harmful to the health of future users, not only from facilities and technical infrastructure, but also from the environment (such as land reclamation) [Walczak 2007]. They often block very ambitious projects, an example of which is the fate of the Kraków - Nowa Huta Przyszłości project.

Presentation of research results

The original research, conducted for many years, included extensive comparative studies of revitalized post-industrial areas in cities and urban agglomerations in Western Europe, as well as in Poland. One of the threads concerned new buildings, primarily residential and downtown functions introduced in such areas [Gyurkovich 2018; Gyurvkoich 2011]. Another was a

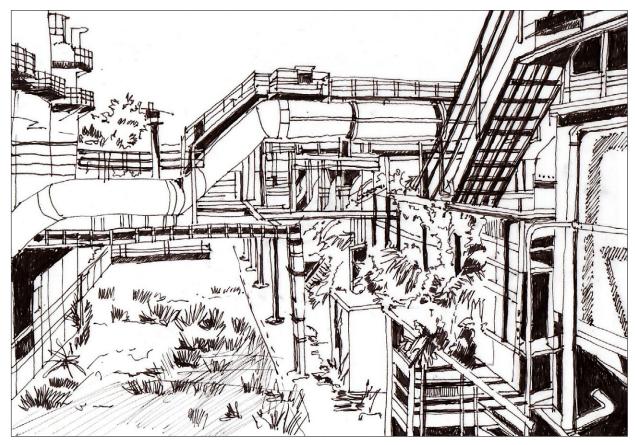


Fig. 1. Landschaftspark Duisburg-Nord; by J. Gyurkovich. Ryc. 1. Landschafspark Duisburg-Nord; oprac. J. Gyurkovich.

comparative analysis of the implementation of a dozen or so parks that were created from the 1980s and 90s in post-industrial areas in Western European cities. In many of them, the remains of previous industrial functions have been particularly clearly exposed. The comparison of the analyzed and studied parks in European cities and agglomerations shows that the historical structures left after their previous industrial functions, which in recreational areas create attractive variations and are adapted to new needs, emphasize the different individual character of these spatial assumptions, being at the same time a testimony to the tradition of the place. Post-industrial structures left in park areas, adapted to new functions, may at the same time play the role of didactic elements for new generations, proving the economic and social development of a given region or city district.

Compilation of parks in big European cities selected for the study

The compilation of the analyzed and studied parks in big European cities indicates that preserved historic structures that used to fulfil industrial functions which constitute interesting attractions and are adapted to new needs emphasize the different, individual character of these spatial complexes, and at the same time bear witness to the tradition of these places. Post-industrial structures left within the perimeter of the parks adapted to new functions can at

the same time serve as didactic elements for new generations, testifying to the economic and social development of a specific region or city district.

Surprising decision to establish the Duisburg-Nord Park on the premises of an ironworks

In vast areas of heavy industry developing until the end of the nineteenth century and the early twentieth century in the Ruhr region in Germany, there remained large post-industrial structures as appearing new technologies demonstrated that factories that had operated successfully for over 80 years were no longer needed. Along the Emscher river, within the scheme of a regional revitalization program, the IBA Emscherpark was established, as well as Westpark in Bochum, with a hall of metalworks converted into an exhibition and concert hall, as well as the famous Landschaftspark in Duisburg-Nord, which was set up within the territory of former metalworks [Kimic 2008]. Duisburg, a city located at the confluence of the Rhine and its tributary the Ruhr, constitutes the western limit of the industrial region in Germany—the Ruhr region, where it is the third biggest city, after Dortmund and Essen. When commencing the park designing process on the site of enormous abandoned steelworks, it was initially planned to demolish and liquidate all the big structures which had been built since 1901 in Duisburg-

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No.	PARK NAME	ESTABLISHED IN	CITY	SURFACE AREA IN HECTARES	PREVIOUS FUNCTION	PRESERVED HISTORIC POST- INDUSTRIAL STRUCTURES	NEWLY INTRO- DUCED BUILDINGS
1	Les Halles Gardens	2010– 2016	Paris, first district	6	Central Paris Halls		
2	Parc des Buttes Chaumont	1860s 1867	Paris, nine- teenth district	25	A gypsum and stone mine, a land- fill site	Railway tracks for trans- porting stone	
3	Parc Georges Brassens	1984	Paris, fifteenth district	7.4	A slaugh- terhouse, a horse and fish market	Buildings from 1849- 1897, an entrance gate, a slaughterhouse	
4	Parc de la Villette	1984- 1987	Paris, nine- teenth district	55	Slaughter- houses and a meat market	nineteenth-century historic buildings, foundations of a slaughterhouse	City of Culture and Industry, Geode, folies, Cite de la Musique, Zenith, conservatory, philharmonic
5	Parc André Citroën	1990 – 1992	Paris, fifteenth district	14	An automo- tive plant		orangeries, tall glass and concrete pavilions
6	Tino Rossi garden	1975– 1980	Paris, fifth district	3.8	Post-storage areas by the Seine		Outdoor sculptures
7	Parc de Bercy	1994– 1997	Paris	14	Post-storage areas of wine by the Seine	wine warehouses	
8	Parc Joan Miró	1982– 1989, 2006	Barcelona	4.7	Slaughter- houses in 4 quarters		An underground garage and rainwater tanks
9	Parc del Clot	since 1986	Barcelona	3.5	A railway traction with workshops	Stone arches, fragments of workshop walls, St. Clot station, chimneys	simple metal frames
10	Westergas- fabriek	since 1997	Amsterdam	11.5	Gasworks – gas produced from coal	nineteenth-century former factory buildings, a gas tank	
11	Landschafts- park	since 1991	Duisburg Nord, Ruhr Region	180	Metalworks and a power plant	all elements of the steelworks and the power station from the early twentieth century, a blast furnace, a gas tank	
12	Silesia Park	since 1951	Chorzów – Katowice Poland	620	Heaps of post-mining waste, boot- leg mining shafts, swamps, wasteland		A football stadium, a planetarium, a zoo, an amusement park, a funicular, a narrow gauge railway, a Polish Tourist Society center, a scouts center, a tower greenhouse

Table 1. Results of the study; by J. Gyurkovich.

Meiderich due to the considerable deposits of metal ores located there. However, the concept of the designers assumed the principle of perpetuating the memory of this place [Maniecka n.d.]. The buildings erected in the area of 180 ha in the early twentieth century were left so as to make sure that the successfully operating plants: steelworks and a power plant would be remembered, and young people could admire the progressing process of transformations. Visitors were offered an opportunity to observe and understand changes in August Thyssen's steelworks, which had operated here for 85 years until 1985. The landscape park on these post-industrial grounds was designed in 1991 by Peter Latz + Partner [Leppert 1998]. The area between individual buildings of this enormous industrial facility was contaminated. All the remaining pollution was eliminated, extensive renovation works were carried out. The highly toxic soil around the buildings was cleaned by phytoremediation, whereby plants were planted and a public park was arranged—Landschaftspark Duisburg-Nord. Today one can visit here a preserved blast furnace, as well as climb onto its roof to enjoy the view of the surrounding area from the height of 70 m. Two new slides go down from the roof of the existing building. On the square, at the level of tapping pig iron from the blast furnace, a stage was built, where theatrical performances and concerts are held. Concrete walls of preserved ore storage bunkers were converted to climbing walls [Dettmar 2005]. The former oval gas tank was transformed into Europe's largest training pool for divers with the diameter of 45 m and the depth of 13 m, with the capacity of 21 million liters of rainwater. Buildings of the power plant, the engine room, and the metal foundry were retrofitted, and the bunkers where metal ores used to be stored were converted into an art gallery. Different groups of plants introduced here constitute separate zones of the park. It was the designers' intention to demonstrate and open the park for visitors in 1994. The park was to present the history of this place, and assuming that plants grow, the entire area was to return to the condition from before the nineteenth century, from before the investment expansion of metallurgy. Rusty machines, wheels, pipes, cranes, gantries were entwined with different species of climbing plants. The entanglement of gas pipes remained and cycling lanes, gardens and lawns were introduced between them. Catering and hotel functions were proposed for the existing post-industrial buildings. This area is a frequent venue of concerts, film shows, all sorts of art exhibitions. Canals and embankments of the Emscher river, with numerous terraces, stairs, and bridges create an interesting chain of water recreation facilities [Keil 2005]. Ever since 1996, when it gets dark light installations in different colors designed by a British artist Jonathan Park [Landschaftspark Dusiburg-Nord n.d.] appear automatically. The park creators and designers succeeded, because visitors have an impression that nature has been reborn in this degraded, post-industrial area

and created a new, surrealistic world, bringing associations with fantastic futuristic movies about the decline of nature devastation and destruction brought about by people on our planet.

New development of post- industrial areas in Warsaw

Two big industrial plants, occupying entire urban quarters, liquidated recently in Warsaw can constitute typical examples illustrating how such post-industrial areas tend to be developed in our country. The Warsaw "Koneser" Vodka Factory, dating back to 1895-1897, in the 1950s was transformed into the "Polmos" Spirits Plant. It was located in Warsaw in the district of Praga, occupying the entire urban quarter of the surface area of 50,000 m², between Ząbkowska, Nieporęcka, Białostocka, and Markowska streets. Besides workshops and the factory [Szpakowska-Loranc and Matusik 2020], within the same urban quarter there were always apartments for workers and a school. The factory, employing 400 people and producing a quarter million bottles of different spirits in the interwar period, operated—intermittently—until 2007. In recent years, the entire area was opened for residents and adapted to new functions. Several Neo-Gothic buildings of clinker brick with small turrets and narrow window openings remained and were adapted to the functions of restaurants, cafés, and a museum of Polish vodka; no greenery, however, was introduced here, apart from small lawns. Instead of the rather bleak demolished structures, new residential buildings were erected with 330 apartments, five-story office buildings, trade and catering facilities [Kuranowska-Gruszecka 2018]. A similar fate affected another liquidated post-industrial area in Warsaw, in the district of Powiśle. For years there had been dreams to implement the concept of a 'garden city' in this atmospheric district, attractive for residents, situated among greenery in the vicinity of the escarpment and boulevards by the Vistula river. These plans were not entirely successful—not so long a nineteenth-century industrial plant was still operating here. In 1856, at Ludna Street Warsaw's first gasworks opened, to be closed only in the 1930s [Zylski 2014]. Even before the Second World War some of the large gas tanks were disassembled. Several decades later, in 1903–1905 the capital city's first power plant was built in Powiśle, which operated until 2003. The territory of this district, situated on the Vistula Escarpment, inspired interest already in the 1990s, when building the library building of the University of Warsaw (designed by Marek Budzyński and Zbigniew Badowski) and soon after that during the construction of new residential and office complexes. Powiśle became attractive for developers. The complex located within the perimeter of the former power plant put into use in recent weeks constitutes the second stage of revalorization of this city district. New office buildings, an apartment building, a hotel, and service outlets have been introduced here [Majewski and Mycielski 2020]. The design of new uses covering



Fig. 2. Warsaw—the site of the former "Koneser" Vodka Factory, 2019; photo by J. Gyurkovich. Ryc. 2. Warszawa – teren byłej fabryki wódki "Koneser", 2019; fot. J. Gyurkovich.



Fig. 3. Warsaw—the grounds of the "Powiśle" power plant, 2020; photo by J. Gyurkovich. Ryc.3. Warszawa – teren elektrowni "Powiśle", 2020; fot. J. Gyurkovich.

the entire city block between Wybrzeże Kościuszkowskie, Dobra, Tamka, and Leszczyńska streets with a total surface area of 25,278 m² was developed in 2008-2020, and its completion was planned for 2021 (designed by APA Wojciechowski). The investment area is directly adjacent to the Vistula boulevards and parks located in the Vistula corridor. On the left bank of the river they also include historical park layouts (Łazienki, Agrykola) [Guranowska-Gruszecka 2018]. And here, in one of the most fascinating districts of Warsaw, no bigger green areas were planned, either, apart from individual trees and small lawns. Several post-industrial buildings made of clinker brick remained, with the characteristic engine room on top of the boiler house, after adapting it to the trade function. The lack of greenery can be sorely felt here. Similar impressions can be evoked in other big cities in Poland, e.g., Cracow, Łódź, Poznań, Wrocław, Katowice, where in recent years several bigger industrial plants have been closed down in different districts, to be replaced predominantly by new residential complexes or about office or commercial functions.

Conclusions

For many years we have been observing a growing interest in historic cities in European countries. More than a hundred years ago, Alois Riegl drew attention to the "cult of antiquity" [Riegl 1903]. In his publications, Bogusław Szmygin called the current interest in the past and history "an increase in the demand for heritage" [Szmygin 2011]. Constantly changing cities, including protected areas, require the implementation of revitalization processes. This also applies to histori-

cal cities. "The conditions for development should be specified in the local spatial development plan, and in historical cities—a detailed plan specifying the principles of protection and shaping of spatial order. Meanwhile, the current legal situation has meant that spatial planning has been limited directly to the area of a single project" [Landecka 2007]. The lack of a plan makes it possible to erect almost any implementation in various places. This statement from 2006 seems, in most cases, still valid in our country. Based on the analysis and detailed comparative studies of selected projects implemented in recent years the Author has demonstrated that in rich western countries post-industrial areas get transformed into parks, full of greenery and offering rest and recreation opportunities, much more frequently than they do in Poland. In Poland, on the other hand, a country where there is still an insufficient number of apartments, developers erect buildings in such places; predominantly residential buildings [Gyurkovich and Gyurkovich 2021], but also hotels and office buildings or commercial facilities with functions of trade and services. Making use of degraded post-industrial areas for the purposes of tall and medium greenery projects in big European cities may save the environment from the crisis connected with high carbon dioxide emissions to the atmosphere, which results from the fact that numerous industrial plants are situated in central parts of cities. Environmental pollution can be combated not only by a considerable increase of the use of solar and wind energy, but also by the contribution of natural and biological structures. The natural greenery of parks and gardens becomes helpful in repairing the human habitat.

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Abstract

Over the course of their development, economically successful European cities constantly increase their populations and expand their territories. Degraded post-industrial areas often remain within the perimeter of central urban areas due to associated processes, which is associated with decisions to move functions that cause nuisance to nearby residents beyond city centers and also to other countries. Such decisions have left empty, unused spaces within city centers, which continually remain attractive for numerous real estate development companies due to their location and surroundings. The original research presented in this paper included extensive comparative studies of revitalized post-industrial areas in cities and urban agglomerations across Western Europe and in Poland. One of the themes concerned new building functions, along with the performance of a comparative analysis of the construction of several contemporary parks in such areas. This paper offers a detailed presentation of a range of selected cases of such solutions.

Streszczenie

Miasta europejskie, które odniosły sukces gospodarczy, ciągle się rozwijają, zwiększają liczbę ludności i rozszerzają swoje terytoria. W wyniku tych procesów w obszarach śródmiejskich pozostają często zdegradowane tereny poprzemysłowe, które związane są z decyzjami przenoszenia uciążliwych dla mieszkańców funkcji poza strefy centrum, a także do innych krajów. W efekcie tych decyzji w obszarach śródmiejskich powstawały i stale powstają puste, niezagospodarowane przestrzenie, które są atrakcyjne dla wielu inwestorów i firm deweloperskich ze względu na lokalizację i otoczenie. Autorskie badania przedstawione w artykule obejmowały szerokie studia porównawcze rewitalizowanych terenów poprzemysłowych w miastach i aglomeracjach miejskich w Europie Zachodniej i w Polsce. Jeden z wątków dotyczył nowych funkcji kubaturowych, kolejnym była analiza porównawcza realizacji kilkunastu współczesnych parków na takich obszarach. W tekście szczegółowo omówiono kilka wybranych przykładów takich rozwiązań.