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THE NEXT AVANT-GARDE OF ARCHITECTURE

NASTĘPNA AWANGARDA ARCHITEKTURY

Abstract

The subject and purpose of the research are the possibilities of transforming buildings and urban spaces in line with the next avant-garde of architecture and the factors that may influence it. Research methods are the analysis and criticism of the available materials on the possibilities of developing construction, communication and digitization technologies, the analysis and criticism of the published plans and concepts of futuristic cities, the method of an individual case. As a result of the research, it can be concluded that the scale and nature of the planned changes in urban space and construction, as well as the pace of their implementation, indicate that a new stage of modernity will take place in the near future. It is very likely that the next avant-garde of architecture will emerge, which will result primarily from the development of modern technologies, communication, or the creation of a new type of transport.

Keywords: avant-garde of architecture, city of the future, The Line

Streszczenie

Temat i cel badań stanowią możliwości przekształceń budynków i przestrzeni miejskich na miarę następnej awangardy architektury oraz czynniki mogące na to wpłynąć. Metody badawcze to analiza i krytyka dostępnych materiałów na temat możliwości rozwoju technologii budowlanych, komunikacyjnych i cyfryzacji, analiza i krytyka publikowanych planów i koncepcji futurystycznych miast, metoda indywidualnego przypadku. W wyniku przeprowadzonych badań można stwierdzić, że skala i charakter planowanych zmian w przestrzeni miejskiej i budownictwie oraz tempo ich wprowadzania wskazują, że w najbliższym czasie nastąpi nowy etap współczesności. Z dużym prawdopodobieństwem powstanie następna awangarda architektury, która będzie wynikać przede wszystkim z rozwoju nowoczesnych technologii, komunikacji czy też powstania nowego rodzaju transportu.

Słowa kluczowe: awangarda architektury, miasto przyszłości, The Line

1. INTRODUCTION

Avant-garde, understood as a departure from the existing method of creating architecture towards new aesthetic solutions, may no longer take place in the same form as it was at the beginning of the 20th century. Originality in shaping architecture has largely become the domain of architects nowadays, therefore it is assumed that in the future we may no longer experience significant contrasts in changes in design trends. Any novelty is now often considered normal. What, then, can influence the new avant-garde of architecture? They will certainly be modern technologies, the development of communication, or a new type of transport. Vehicle traffic on multi-level planes, private aircraft, a different type of parking spaces, the possibility of constructing floating buildings, all these aspects will contribute to

the creation of a new spatial order and aesthetics. It can be assumed that the next avant-garde of architecture will emerge then.

Large cities are currently facing many problems, such as the rapidly growing number of inhabitants, crowded streets, inefficient communication system, deteriorating air quality, rising water levels on the planet, or negative environmental impact. Development is a natural thing for humans, it causes changes in the environment and modifies the architectural space. Development generates problems. Le Corbusier wrote that “You don’t revolutionize by making a revolution. You revolutionize by solving problems”¹. The observations show that in the near future the number of problems in cities will increase and that, in a significant proportion of cases, specific actions will be introduced to solve them, which, according to the quoted words, may lead to a revolution or even to the next avant-garde of architecture.

The subject and purpose of the research are the possibilities of transforming buildings and urban spaces in line with the next avant-garde of architecture and the factors that may influence it. It is obvious that the cities of the future are a multithreaded plane for development and changes, but in this text the greatest attention is focused on the possible directions of architectural transformations. The research methods used in this work are the analysis and criticism of the available materials on the possibilities of developing construction, communication and digitization technologies, the analysis and criticism of the published plans and concepts of futuristic cities, the method of an individual case.

2. DIRECTIONS OF DEVELOPMENT OF CITIES

We certainly do not live in the times of architecture avant-garde anymore. The fast pace of technology development, diversity and novelty in shaping space have become normal. The expectations regarding the appearance of new ventures are twofold, on the one hand, we want it to be as it used to be, so that the new one does not differ from the existing one, on the other hand, we want originality. The creators often even try to break away to some extent from what has already been invented. Development, novelty, is obviously a very good way to shape architecture, but if it is done only in order to differentiate from the assumptions used so far, it is a wrong way. Then we lose quality, because well-thought-out, properly functioning things are replaced with new, underdeveloped solutions, only for the principle of change.

According to the researchers’ predictions, around 80% of the continent’s population will live in European agglomerations by 2050. The numbers clearly indicate the need for changes in the spatial structures of large centres of residence. More and more innovative concepts of the cities of the future are being published. One should consider which direction architecture will follow in terms of relations with modern technologies. The issue concerns two lines, the first is shaping new so-called cities of the future, the second is the development of already existing agglomerations. Both new projects in the implementation phase and forward-looking concepts show changes in the architecture of large-scale buildings, but these are only gradual actions and cannot be considered as avant-garde. We can see, however, that the pace of activities is accelerating, projects, research or technology development, also in terms of the investment’s impact on the environment, may soon reach a turning point.

¹ Le Corbusier, *Urbanistyka*, Fundacja Centrum Architektury, Warszawa 2015, p. 322.

Undoubtedly, it can be assumed that the development of cities will be more vertical than horizontal. The development of construction technologies and greater integration of construction with digital technologies and mobility will have a huge impact on the spatial possibilities. Due to the fact that there will be more and more very tall buildings, the number of inhabitants per m² will also increase, communication will play a significant role in the development. Currently conducted research and prototypes of flying vehicles allow us to imagine cities when the number of such vehicles will be significant. Probably the movement will take place at many height levels, thus the way of accessing the buildings will change. The facilities will be serviced at many height levels, which will largely affect the form and function of buildings, as well as architecture. Commonly used underground garages, buildings that are above-ground garages and the entire infrastructure related to the facilities in this respect will cease to be the only and dominant form of public transport. It is possible that buildings will no longer have main entrances only from ground level, but there will be entrances to structures at different levels and in greater numbers. Buildings will become more accessible, it will be possible to more zone the internal functions and differently shaped communication system in the facility. The consequence of such changes will be the need to provide new parking spaces, this time on multiple access levels. The question arises, what will happen with traditional road transport, when air transport is popularized, what about cars in cities, underground parking lots? It is certain that the new type of transport will not replace its current form. It is very possible that there will be a significant reduction in road traffic, or an increase in underground routes, tunnels or metro lines. The direct ground level will always need a well-functioning communication network, but its scope will be very limited.

Disorder arises from the action of uncoordinated forces. In a mind, team, or society that is disorganized, the forces are directed in different directions and unable to act together. A text or work of art that is characterized by disorder is one in which the creator has placed various ideas or topics and left in a state of mere accumulation.²

The state of affairs described by Rudolf Arnheim is extremely unfavourable for large spatial structures. The development of cities in the discussed scope will make the spatial order even more important and necessary. The great variety in shaping the city and the intensity of its use will require special refinement of the operation of the entire city-forming system. In such a developed and complicated urban system, the order and efficiency of communication will play an extremely important role. An ill-considered urban and communication layout, or a faulty management system can lead to chaos on a large scale.

When considering the question of the directions of urban development, an important issue to address is digitization, in particular regarding people-to-people contacts. Activity in the urban space is now being largely limited, which is a direct result of the extensive social media space. Such action is obviously good and necessary, but at present, as a society, we are currently in the phase of implementing these systems and the big unknown is how we will approach it after this phase is over. The question arises whether and when this phase will end, we hear about the announcements of a great revolution on the Internet³, which may further cut

² R. Arnheim, *Dynamika formy architektonicznej*, Oficyna, Łódź 2016, pp. 187–188.

³ Introduction of the so-called metaverse can revolutionize the Internet space in terms of increasing the possibilities of online interactivity, similar in quality of functioning to personal interactions in the real world.

off society from functioning in the city space. We have experience of the restrictions introduced in the world in the last two years, we can see what it was like to function in society at that time. There is a great concern that new changes in the virtual space on a personal level will lead to a situation of being closed to the real world, and thus reverse the perception of reality. It is becoming important to take this phenomenon into account in the development and new way of shaping cities.

Visions of the cities of the future have been spread since ancient times. Not only in literature, but also in films, including for the youngest viewers. As we now see, the creators of the *Jetsons*⁴ cartoon created since 1962, accurately predicted many of today's aspects of everyday life, such as remote work, remote learning, teleporting, etc. This cartoon also presents a vision of a modern city, where communication between buildings suspended at very high heights is carried out by private flying vehicles. In modern cities, the space between buildings will be more used, which will certainly have a significant impact on the architecture. Proposals for the idea of elevating the usable space of buildings on poles above the ground level are already noticed, which, combined with the development and dissemination of surface transport, will introduce us to a new stage of shaping cities.

The floating cities of the future are a contrast to the solution presented above. Work is currently underway on a prototype of such a spatial model, which is likely to be implemented in South Korean waters for the first time. The project by the BIG studio – Bjarke Ingels Group, will be implemented by OCEANIX for the city of Busan. The motivating factor for working on this idea is the rising water level on the planet due to the melting of Antarctic ice. Certainly, this is another way in introducing innovative spatial solutions, which, as it can be assumed, if it is properly carried out and positively received by the community, it will be able to be continued on a larger scale.

3. THE NEXT ARCHITECTURE AVANT-GARDE

The predictions made raise many questions, and the most interesting for us is how this contemporary architecture will shape and how closely it will be related to the new functionalism, as it is precisely this connection that may influence changes in architecture similar to the avant-garde. The related development and changes will concern two cases, i.e. cities designed from scratch and existing cities.

When examining the published information on modern cities of the future, it is clear that the most original and innovative concept is *Neom*. Futuristic megapolis, a project in Saudi Arabia, where it is planned to implement many innovative solutions, both technological and spatial. Flying taxis, artificial moon, artificial clouds, or a modern system of controlling people and the city with the use of drones are the basic features of the technologies used. An original solution in terms of spatial shaping is provided by the concept of the megacity *The Line*, invented by Morphosis, which will be part of the great foundation of *Neom*. It may be surprising that a large spatial structure is shaped within one building. The facility, approximately 170 km long and 200 m wide, is to be a home for 9 million people. The line connecting the North-West part of Saudi Arabia with the Red Sea is certainly the

⁴ American animated series, produced by Hanna-Barbera, years of broadcast 1962–1963, 1984–1987.

most innovative approach to the shape and form of the city, with no streets and no cars left. Residents will be able to walk along, across, up and down, so that a small section of pedestrian communication will provide access to many parts of the buildings, including all essential services. Horizontal communication will take place via underground tunnels, ensuring access to the entire length of the facility in a very short time. The idea of city continuity is already known to us in the form of the Linear Continuous System, designed in the 1960s by Oskar Hansen. The author proposed the application of this system throughout Poland in lines running from the north to the south. Although this time the idea is based on different principles, the main assumption of the idea remains constant. The visualizations of the investment presented by Saudi Arabia are not final materials yet, but already at this stage you can see the huge innovation of the project. "Let's go back to our first principle that architecture is the art of closing space. There are two basic elements: the space and the material used to enclose it"⁵. Herbert Read's words about architecture are timeless, but they certainly cannot be the same way of closing the space as in the case of the discussed project, but without losing contact with the surroundings, the natural environment, without limiting the view openings. The Line city will be a self-sufficient and closed space enclave. One may wonder what such a development model can lead to, how it will affect people. Despite the fact that there is to be a lot of greenery there, the common spaces will be limited by buildings, which can create a feeling of complete enclosure. In a way, two worlds will be created, an internal one, only 200 meters wide, and an external one, with which contact will be limited. Designing cities from scratch in the full spatial range is a very good solution, as exemplified by the Brasilia by Oscar Niemeyer and Lucio Costa. However, in the case of the idea proposed in The Line, we are dealing with a completely different type of perception of space, with the confinement of a man in a building.

Another aspect resulting from the research conducted in this topic is the fact of creating new cities in a form unrelated to the context, as is the case in the described The Line. Architecture without references means shaping a new space in a way that is free from existing canons or references to historical aspects, which we can learn from the book by Valerio Olgiati and Markus Breitschmid *Non-Referential Architecture*⁶. This principle is a straight path to the emergence of the avant-garde. The authors of the designs, not limited by external influences, historical influences or the context of the place, can create architectural spaces that fully reflect invented ideas, sophisticated and developed forms. The lack of restrictions is a huge advantage. In such a situation, limitations can and should be imposed by architects and investors of modern solutions. In the discussed project from Saudi Arabia, no limitations were set, thanks to which the proper and healthy connection of the new spatial structure with the environment would be maintained. Therefore, there is a fear that functioning in this modern city will have a negative impact on human health and psyche. Other cities built from scratch, such as New Cairo, are also modern in relation to existing cities, but in the case of The Line, we can undoubtedly talk about a revolution in the way of shaping architecture.

In the case of already existing cities, each development situation is an individual matter. This will be taken into account by the economic situation, decisions of people responsible

⁵ H. Read, *O pochodzeniu formy w sztuce*, PIW, Warszawa 1973, p. 103.

⁶ M. Breitschmid, V. Olgiati, *Non-Referential Architecture*, Park Books, Zurich 2019.

for city planning, as well as spatial opportunities. Often the layout of buildings will not allow for large-scale development, then enclaves excluded from development to such an extent, i.e. new old towns, may arise. The changes will most often start with innovative projects of a specific building in a given part of the city. It is around these facilities that the communication infrastructure will change, which will then expand its scope in a given part of the city.

Another case will be new districts designed from scratch. It is so in modern times that cities are expanding with new parts on a large scale. The *IJburg*⁷, residential district of Amsterdam, designed from scratch, is an example of a large spatial arrangement implemented consistently according to a very well-developed idea and detailed plan. It can be assumed that entire districts of the agglomeration will be planned in a similar way with the assumption of modern solutions. Thanks to such assumptions, it is possible to fully plan, above all, the method of multi-level communication in such a zone, which will be related to the new method of shaping the architecture. The South Korean floating city project shows a new line of development for built-up space. In this case, the buildings will be low due to strong winds, and the architecture of the facilities will not differ significantly from the existing projects. The establishment is characterized by enormous technological innovation and low environmental impact as well as resistance to the risk of rising inland waters. The aesthetics of the facilities is not characterized by new standards.

Probably the ideas for creating districts from scratch will not only concern undeveloped areas on the outskirts of cities, but also the comprehensive reconstruction of existing districts on a larger scale, perhaps even on the scale of Le Corbusier's Voisin Plan, which, as you know, at that time caused controversy. It is possible that modern spatial assumptions will be based on this pioneering design work, the urban layout of which would be an excellent basis for shaping buildings and cities of the future. Le Corbusier believed that "Our world, like an ossuary, is covered with the remains of dead ages. The task awaits us: to create the framework for our existence. Discard rotting debris from our cities and build cities for our time"⁸.

A significant change will be a new height level of perception of buildings. Man will observe and use objects not only from the ground level, but also from many different levels. Many of the current features defining the objects, including for example the definition of the entrance zone, will certainly be modified. The sense of scale will also change, as we perceive the volume of cubature differently from different levels. Skyscrapers will still be monumental, however, perceiving them from different heights will mean that monumentality will also be perceived in different ways. One can risk a statement that the visual perception of tall buildings will be more accurate then, perception of an object viewed from different sides and different height levels is a bit like watching a sculpture from many sides. As Rudolf Arnheim wrote, "Moving around in our environment, we see things from different points of view. We can also deliberately change our place to get a better view. You can see the sculpture only when you walk around it; the same can be said for architecture"⁹.

⁷ A residential area of Amsterdam under construction, on the artificial islands of Masterlan IJburg by de Architecten Cie.

⁸ Le Corbusier, *Urbanistyka*, Fundacja Centrum Architektury, Warszawa 2015, p. 267.

⁹ R. Arnheim, *op. cit.*, p. 120.

4. SUMMARY

As a result of the research, it can be concluded that the scale and nature of the planned changes in urban space and construction, as well as the pace of their implementation, indicate that a new stage of modernity will take place in the near future. It is very likely that the next avant-garde of architecture will emerge, which will result primarily from the development of modern technologies, communication, or the creation of a new type of transport. The scale and scope will depend on the nature and rate of change. An important issue is also the ratio of private to public air transport, which will influence the shaping of architecture, resulting in this case largely from the functions of buildings. In order for the avant-garde to arise, the planned activities must be carried out at a very high pace, because the slow, gradual implementation of the idea could blur the meaning of the breakthrough, there would be no contrast between the old and the new. The currently presented prototypes of new communication and transport technologies as well as the presented visualizations of the concept of cities of the future, and above all the *The Line* agglomeration, already partially confirm the assumptions made in the article.

The result of the research is the position that city districts will be created, very closed to their surroundings, forming almost one large building. The presented example from Saudi Arabia shows that these can be self-sufficient facilities completely cut off from the neighbourhood. If the discussed city becomes a new standard for shaping modern cities, and together a symbol of such a change, it may also have an impact on the beginning of the next avant-garde of architecture. It is also worth considering, looking far into the future, how the region of the world will function in which there will be more agglomerations of this type. A network of self-sufficient cities separated from their surroundings will be created. What will intercity communication look like then and to what extent will it be needed, taking into account the closure of independent agglomerations. There are many concerns and threats in this matter, especially if we combine this path of urban development with the development of digitization in the field of people-to-people contacts. It is clear that if the development takes place as planned, the city plans like *The Line* will form a unified system with it. The purpose of this text is to define the directions of changes in architecture, but other aspects should also be mentioned. According to the authors' assumptions, investments of this type will be self-sufficient and harmless to the environment, which is an undoubted advantage. However, concerns are raised by the very high probability of generating a negative impact on mental health and human development. The proposed form of urban planning of the city will result in the effect of closing, living in an enclave cut off from the natural world, which will result in the lack of a sense of freedom, and at the same time limiting human contact with nature.

The directions of urban development and changes in architecture will depend on the ideas and visions of architects and investors, but also on the acceptance of the proposed solutions by users. The revolutions introduced on the example of individual investments may not be positively received by the society and may not be continued with the original assumption in subsequent projects. The next avant-garde of architecture, if it is created, will be influenced by many factors, but the basis for its creation will certainly be modern technologies, the development of communication, or a new type of transport. The moment of the beginning of a new period in the world of architecture is still very unpredictable. It can be assumed that the development ambitions of many countries and the need to reduce the negative impact of buildings on the environment will accelerate the implementation of the planned ideas.

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