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ON THE APPROPRIATENESS OF ARCHITECTURAL FORM. COMMENTARY ON METAPHOR IN THE ARCHITECTURE OF AIRPORT TERMINALS

O STOSOWNOŚCI FORMY ARCHITEKTONICZNEJ. UWAGI O METAFORZE W ARCHITEKTURZE TERMINALI LOTNICZYCH

Abstract

This paper discusses the study of the presence of metaphor in the architecture of airport terminals. The study was performed via an analysis of selected designs and projects, a review of the literature and participative observation. The final conclusions indicate a constant appearance of motifs that refer to the symbolism associated with air travel and which considerably impacts the shaping of architectural form. This phenomenon can be observed across all scales of buildings, including the largest projects whose designs are heavily influenced by the latest construction and information technology.

Keywords: airport terminal architecture, metaphoric form, metaphor

Streszczenie

Przedmiotem artykułu jest badanie obecności metafory w architekturze terminali lotniczych. Badania przeprowadzono w oparciu o analizę wybranych projektów i realizacji, studia literaturowe i obserwację uczestniczącą. Ustalenia końcowe wskazują na trwałe występowanie motywów odnoszących się do symboliki związanej z żeglugą powietrzną, mających przy tym znaczący wpływ na kształtowanie formy architektonicznej. Zjawisko to można zaobserwować we wszystkich skalach obiektów, także w największych realizacjach powstających pod silnym wpływem najnowszych technologii budowlanych i informatycznych.

Słowa kluczowe: architektura terminali lotniczych, forma metaforyczna, metafora

1. INTRODUCTION

What then is truth? Truth is a mobile army of metaphors, metonyms anthropomorphisms (...).

Friedrich Nietzsche

From a starting point of general statements on the notion of truth, the author commented on attempts at valuating works of architecture in the category of truth/falsity. Le Corbusier's understanding of the lie of architecture that does not reflect the spirit of its time – which

remains valid to a considerably degree – was chosen as the leading theme of the argument. The matter of architectural metaphor, when analysed in this context, gains a new perspective, leading us to ask questions about contemporary principles of the structure of form, the validity of the theory of appropriateness or the roles that form plays in contemporary architecture.

The dictionary definition of truth states that truth and falsity are two classical logical values that can be attributed to a judgement or statement.¹ It also notes that due to its vagueness (many statements are relatively vague) one should introduce grey into its overall black-and-white scheme.² The author of the entry also highlighted that presupposition (unstated circumstances or generally assumed convictions) likewise play a significant role in judging truth from falsehood, and which, despite the hardest of attempts, can lead to false conclusions, but it is also the necessary condition for practicing any sort of science, i.e. any form of activity wherein one strives to determine the truth.

In the philosophically elaborate theory of truth, apart from a range of various directions of thought, we can find, among others, realism, scientific anti-realism, instrumentalism, conventionalism or social constructivism. Even realism has multiple meanings and, as established scholars have claimed, it is not possible to make a complete list of its variations.^{3, 4} Adam Grobler summarised his philosophical argument, naming his thought a metaphorical one, as follows: “We are condemned to a patchwork of theories, each of which covers a selected fragment of the world. The constant reworks of the seams that tear under the force of experiments and unforeseen phenomena allow us to better piece together the fragments of this patchwork to fit our cognitive needs”.⁵ As it can be seen, the position of contemporary philosophy in fundamental notions of determining absolute truth is explicit – it is unachievable.

2. THE TRUTH OF ARCHITECTURE IN LE CORBUSIER’S TRADITION

In light of philosophy’s position on the possibility of determining truth, the diversity of views, theoretical traditions and design strategies used in practice should be no cause for concern.

In the late 1920s, when comparing the developing engineering aesthetic and academic architecture that had been mired in a crisis, Le Corbusier explicitly stated that lies should not be tolerated, for they imperil us.⁶ Le Corbusier’s concept of genuine, true architecture, i.e. one that is concordant with the achievements of modern civilisation, was not one-sided. It had at least two primary components: a strong load of poetic sensitivity to forms found in the stores of cultural heritage and nature, and technical realism that manifested itself in

¹ S. Blackburn, *Oksfordzki słownik filozoficzny*, transl. C. Ciesliński et al., Książka i Wiedza, Warszawa 1997, p. 310.

² *Ibidem*.

³ A. Grobler, *Realizm* [in:] J. Hołówka, B. Dziobkowski (eds.), *Panorama współczesnej filozofii*, Wydawnictwo Naukowe PWN, Warszawa 2016, p. 359.

⁴ Generally speaking, realism is a worldview that stipulates the existence of some type of objects irrespective of the subject that performs their cognition. Moral and aesthetic realism states that moral and aesthetic values actually exist. However, from the point of view of social constructivism, they are cultural creations that exist because of a social contract.

⁵ A. Grobler, *op. cit.*, p. 372.

⁶ Le Corbusier, *W stronę architektury*, Fundacja Centrum Architektury, Warszawa 2012.

the construction of machines – and which was clearly much more accentuated in the earlier phase of the formation of Modernist doctrine.

Representatives of architectural minimalism, such as John Pawson, still reference the French classic. His vision of truth, discovered in historical architecture, was written down by Lucien Hervé in the form of a cycle of black-and-white photographs of the twelfth-century Cistercian abbey in Le Thoronet, Provence. Along with a preface by Le Corbusier, the photographic album was published in the middle of the 1950s. In 2001, the visual essay, under a meaningful title *Architecture of Truth*, was republished, this time with a text by John Pawson,⁷ which was placed there by the publisher.

Before he designed La Tourette (1961), Le Corbusier had sought inspiration in this abbey. Pawson followed in his footsteps several decades later while studying the monastic complex while working on a design of the Nový Dvůr Cistercian abbey in the town of Toužim, Czech Republic (2004). Purist photo-images, coupled with texts by medieval thinkers and biblical psalms, made the French abbey a model of sublime simplicity and architectural truth that remains valid to this day.

Similarly to the threads of poetic minimalism, inspiration with aerial engineering became a fixture of Le Corbusier's concept of architectural truth. The architect expressed his fascination with the structural logic of aeroplanes already in his writings from the 1920s. In a later period, influenced by his travels, he noticed the potential in observing the built and natural environment from a birds-eye view. Invited by a British publisher, he wrote the book entitled *Aircraft: The New Vision*,⁸ in which he demonstrated the possibility of reading new senses for architecture and urban planning when seen on a planetary scale. The tradition of Le Corbusier's respect for engineering, supplemented by Buckminster Fuller's pragmatism and the application of construction technologies in the broad high-tech style has been continued by the generation of architects who have been active in the field of airport terminal design since the 1980s. It includes, among others, Norman Foster, Richard Rogers, Renzo Piano and Nicholas Grimshaw. Their work, despite a programmatically assumed stance of an architect and engineer, clearly bears the mark of poetic metaphor.

3. METAPHOR AS A TOOL OF EFFECTIVE COMMUNICATION

Metaphor has long since been perceived as the counter to scientific objectivism, which has become increasingly dominant in all spheres of life. The contemporary academic justification of the necessary presence of metaphor in culture and its beneficial role in tearing down the myth of academic omnipotence was presented by American language scholars George Lakoff and Mark Johnson.⁹ In architecture, metaphor is associated with the concept of *architecture*

⁷ L. Hervé, *Architecture of Truth*, Phaidon Press, London 2001.

⁸ Le Corbusier, *Aircraft: The New Vision*, The Studio Publications, London 1935, <https://www.bl.uk/collection-items/aircraft-by-le-corbusier> (accessed: 12.06.2020).

⁹ The authors proposed a new outlook on an old problem. During a period of fascination with generative architecture created using calculating machines, they acknowledge the fundamental significance of human imagination in creative processes. The chapter on how metaphor gives form its meaning, in which the scholars argue that we give spatial dimensions to language forms in our mind and these become filled with meaning thanks to spatial metaphors. G. Lakoff, M. Johnson, *Metafory w naszym życiu*, transl. T.P. Krzeszowski, Wydawnictwo Aletheia, Warszawa 2010, p. 175 and later.

parlante – an architecture that comments on and explains itself. The idea for such a simple and effective means of communication between the architect and the user was born in the period of the French Revolution. The unimplemented design of a house for the director of a waterworks plant by Claude-Nicolas Ledoux in the form of a pipe with water flowing through it is a fitting example. In a later period of eclecticism, buildings featuring allegoric sculptures and inscriptions explaining a building's function were built en-masse. One example of a contemporary version of large-scale *architecture parlante* is the new building of the National Library of France in Paris by Dominic Perrault, who designed it in the form of four towers intended to symbolise books open at a right angle and placed upright on a stylobate near the Seine.¹⁰ This mode of thinking and level of realisation proves that an aviation-related metaphor, i.e. referencing the figures of birds and wings, is permissible or even appropriate. Terminals can, although this should not be standard in any case, demonstrate a readiness for flight, avoiding naïve mimetism. Metaphorical messaging does not interfere with even the most complex function and building services and does not obscure its technological intelligence. It does not falsify the image of architecture, on the contrary – it can define its authenticity.¹¹

Therefore, the view that “(...) metaphor was, is and probably will be the category of understanding architecture that is one of the major means of magnifying its poetic imagery – via the indirect presentation of the idea, or directly, due to the stylistic measures applied in the building,”¹² is justified.

4. CASE STUDY

The cases mentioned in this paper in a historical layout are not intended as a sort of a collection of oddities or surprisingly explicit or aesthetically risky designs.¹³ The intent behind their presentation and analysis is to demonstrate that, despite the progress of science and technology, the expectations faced by architecture remain unchanged. They are based on a need for creating buildings of symbolic significance within the cultural space. This pertains not only to buildings that are traditionally seen to play such a role – temples, museums or places of remembrance – but also utilitarian buildings, including transport nodes.

¹⁰ The symbolic plan, compliant with Le Corbusier's notion of the plan as the generator, has been present in architecture for centuries. The most prevalent and legible form of it in European cultural circles is the cross, but there have also been more individual solutions. The more unique ones include the seventeenth-century chapel of the Heart of Mary in Kalwaria Zebrzydowska, which is built on a heart-shaped plan.

¹¹ Rudolf Arnheim argues that: “A work of architecture, as a whole and in its parts, acts as a symbolic statement, which conveys, through our senses, humanly relevant qualities and situations. The more firmly a traditional symbol attaches itself to an appropriate physical image, the more convincingly it survives changes in philosophy and doctrine.” R. Arnheim, *Dynamika formy architektonicznej*, transl. A. Grzeliński, D. Juruś, Oficyna, Łódź 2016, p. 223.

¹² M. Charciarek, *O metaforze w architekturze współczesnej*, doctoral dissertation, Kraków 1999, p. 9. The author presented a systemic analysis of the problem in his work.

¹³ Keeping in mind the increased ease of access to iconographic resources on the Internet, the author resolved not to collect illustrative material for the cases under discussion. The paper instead features photographs that depict the artistic quality of the TWA terminal by Eero Saarinen, as an integral part of the text.

The first planned airport was built in 1909 in the locality of Viry-Châtillon near Paris.¹⁴ The design of a complex of wooden buildings was prepared by Guillaume Tronchet, who was known for his eclectic architecture. The airport was a simple layout of uncomplicated elements, yet the judges' observation tower displayed the first forms of flight control towers, which has become one of the elements of identifying early terminals and later an independent sign of entire airport complexes.

Terminals built during the interwar period were designed largely in the style of *École des Beaux-Arts*, Classical Revival or art déco, which dressed buildings in historicising costumes or local forms of functionalist architecture of moderate Modernism. They mostly emulated train stations, as aviation, which had been in its initial stages of development, wanted to build the trust of passengers and sought support in this endeavour from forms of architecture associated with safe means of transport. Despite programmatic enthusiasm and the apotheosis of engineering in avant-garde circles, no airport terminal to feature such an architecture was built.

Early projects in which one can find aviation-related metaphors include the no-longer-existing airport building in Ramsgate (Pleydell-Bouverie, 1937), which resembled a flying wing in form, and the surviving terminal in Elmdon near Birmingham (Norman and Dawbarn, 1939). The building was, figuratively speaking, given wings due to a simple functional solution which was based on adding symmetrically rising roof surfaces, which were intended to cover the passengers who boarded or exited the planes while standing near the terminal. The building has a conventional façade from the side of the driveway, which contrasts with its view from the tarmac.

It was only after the Second World War, particularly after jet airliners had entered service, that aviation began to gain the status of a socially significant field of activity, producing a distinct symbolic culture based on the romantic aura of travelling across the sky. Aviation became a part of the optimistic vision of the future present in the futurological narratives of the 1950s and 60s. The atmosphere of limitless capabilities of space conquest resulted in the construction of an icon of aviation architecture – the TWA terminal at the JFK International Airport in New York (Eero Saarinen, 1962). After being granted the status of a historical landmark, the building is currently a classic of iconic and metaphoric architecture. Built using reinforced concrete, it is quite massive and heavily set on its large supports, despite producing an impression of a building capable of levitating above the ground. The JFK's "bird" is, in a sense, referenced by the "dove", the terminal at Sondica Bilbao airport (Santiago Calatrava, 2000). The scale and grandeur of the metaphorical form, which encompasses the entire building, are similar. A simplified model of a paper aeroplane can be seen in the form of the roof above the T3 terminal at the Kastrup airport in Copenhagen (Vilhelm Lauritzen, 1998). It is simple and legible, yet its complete view is accessible only to airborne observers.

The flying wing in Farnborough (3DReid, 2000), inspired by the elegance of aerodynamic forms, is an operations and business centre of an airport for small private aeroplanes. It features office spaces that appear wrapped by the façade-roof of the building, which has an oval cross-section and is covered in metal cladding. Despite its function being far from spectacular and its obvious metaphor, it is good, acknowledged and prize-winning architecture. The building, due to its scale and modest means, resembles the structure at Ramsgate to a degree.

¹⁴ The take-off area was a meadow above which race tracks were planned. At the time aeroplanes were unfit for use as a means of circulation.

In Poland, the terminal in Modlin (Kuryłowicz & Associates, 2011) is, as written in its description: “Another expression of a fascination with aviation and will surely not be the last – here it is justified by function. The curvature of the façade resembles an aeroplane’s cross-section (...).”¹⁵ The form shows some resemblance to the wing in Farnborough. Here, the terminal’s oval is similarly covered by profiled metal sheets, deliberately evoking associations with the distinct outer shell of airships. The terminals of the Kraków Airport in Balice and the Rzeszów-Jasionka Airport (APA Czech-Duliński-Wróbel, 2012, 2016) bring to mind less obvious associations. Although it was not the intention of the authors, the first is sometimes described as similar to an open parachute, while in the second one can find forms similar to the kites built by Graham Bell at the start of the twentieth century. In turn, the terminal in Wrocław (JSK Architekci. Pszczulny & Rutz, 2011), due to its light structural system, large glazed surfaces and undulating roof, operates with a more distant metaphor of liberated space.

Public buildings can be considered particularly predestined for playing the role of signs of cultural identification and building the identity of specific communities.

Turkmenistan, whose ambition is to form the civilisational centre of Central Asia, has used airport terminals to create architecture with strong symbolic expression. Its example is notable due to the scale and vividness of the message. In 2016, the airport in Ashgabat, the capital of Turkmenistan, opened an airport terminal with a floor area in excess of 165 thousand m² and a yearly capacity of 14 million passengers (these numbers correspond to a medium-sized regional airport). An appropriately smaller VIP terminal was built nearby. Both buildings, constructed in accordance with the precepts of contemporary passenger terminal functional layouts, have forms that explicitly resemble hawks, birds that feature heavily in the country’s tradition. The terminal halls, each appropriately to its span, have been covered with roofs in the shape of open wings and topped with stylised bird heads whose beaks accentuate their respective geometrical axes of symmetry. The facades have been made of white marble and glass, and the roof has been covered with metal panels. The building of the large terminal has a length of 710 metres (from the entrance to the departures hall to the end of the pier, i.e. from the hawk’s beak to its tail), a width of 365 metres (the span of the wings) and a maximum height of 45 metres (the bird’s head).

The Dutch company NACO authored the general plan and aviation section of the airport. Since the 1950s, it has designed the successive phases of the extension of Schiphol Airport in Amsterdam, in addition to other airports and terminals all around the world, including some of the world’s largest mega-hubs. The terminals in Ashgabat were designed by Marcus Ibelings and Arie Van Tilburg, who are graduates of Dutch architectural schools. Their portfolio features architecture that can be described as moderate New Modernism with elements of green architecture.¹⁶

The competition for the second mega-terminal in Beijing, which focused the attention of leading architects on the grandest task of the second decade of the twenty-first century (and perhaps the largest terminal of the first half of his century) was a sort of an indicator of tendencies and directions of change set by the increasingly influential culture of China.

¹⁵ Terminal Lotniczy w Modlinie [in:] Kuryłowicz & Associates, <https://www.apaka.com.pl/pl/projekty/lotnisko-w-modlinie> (accessed: 14.06.2020), Grzegorz Piątek, Jarosław Trybuś; “Pasja i Pragmatyzm. Człowiek, architektura, wolność”, excerpt from an overview of the project from the firm’s website.

¹⁶ *Airport Ashgabat Turkmenistan Een Turkmeense valk* [in:] Ibelings van Tilburg architecten, <https://www.ibelingsvantilburg.nl/projecten/ashgabat-international-airport/> (accessed: 14.06.2020).

In 2019, the largest terminal in the world, Daxing near Beijing, was completed. Its size is defined by numbers: 700 thousand m² of floor area and a yearly passenger capacity of 100 million. The closed competition for its design was participated in by teams from acclaimed architectural studios who cooperated with the world's largest engineering firms that specialise in airport design. The winning design featured a compact building with short accessways to departure halls and aeroplane contact gates, ensuring the greatest functional effectiveness. It was authored by Zaha Hadid Architects and the Paris-based company ADPI, which combined their engineering and artistic potential during the final stage of the competition at the behest of the organiser. The plan and architecture of the building earned it the nickname "starfish". Due to its rounded, expressive shape, it is compared to New York's TWA, yet the concept of this terminal is not based on a clear aviation-related metaphor. It arises largely from optimising the function of the five-armed layout that was architecturally designed in the spirit of Zaha Hadid's later works.

A terminal with a similar layout that was formed into a five-pointed star also took part in this competition. It was explicitly modelled after the Chinese national symbol. The design was prepared by Rogers Architects and the Arup Engineering Company. As written in its original description: "Great buildings celebrate their context as well as making a key contribution to human experience and cultural life. This was the primary aim of RSHP's proposal; to create a strong contextual relationship through the form and national symbolism of the five-pointed star."¹⁷ The design, which is surprising in its explicitness, despite the clarity of a clear design decision, was not received well. It also turned out to be functionally defective; the sharp points of the star would require widening so as to place a greater number of airplane contact gates near the terminal.

The buildings discussed above belong to the class of medium, large or even so-called global mega-hubs. The phenomenon of aviation-related metaphor is also successfully used in the smallest buildings. This tendency is attested by two cases of buildings erected in recent years in small, provincial ports of the United States, which, as a country, has the largest number of pilots and the oldest tradition of individual private aviation.

The general aviation terminal in Fernandina Beach on the island of Amelia, Florida (Passero Associates, 2018) was designed in the shape of a US Navy F4U Corsair fighter plane, which operated from the area during the Second World War. Wings cover the terminal's observation deck and parking lot, while a cockpit and tail cover the entrance. From the air, the building produces an impression of a realist mock-up. Its form, as reported by the initiators of the project and the designer, is a departure from the standard "box" and an attempt at creating a unique building linked with place-based tradition.¹⁸ Despite its aviation-related symbolism, the building is relatively massive, as local regulations stipulate it must withstand class 4 hurricane-force winds (on a five-point scale). It may appear that because of this, a terminal capable of functioning during critical situations should instead opt for forms resembling "invisible" aeroplanes and ships, wherein all shapes are translated into slanting surfaces resembling defensive structures. The need for clear symbolism was more important to the local community.

¹⁷ Original description of the proposal: *Beijing New International Airport* [in:] Rogers Stirk Harbour + Partners, <https://www.rsh-p.com/projects/beijing-new-international-airport/> (accessed: 14.06.2020).

¹⁸ Original description of the proposal: *General Aviation Terminal Fernandina Beach* [in:] Passero, <https://www.passero.com/projects/general-aviation-terminal-fernandina-beach> (accessed: 14.06.2020).

The general aviation terminal at a rural airport in Carrol County, Berryville, Arkansas, USA (Modus Studio, 2011) is described by its authors as “an architectural machine inspiring the adventure of flight.”¹⁹ It was based on a similar concept to the building in Fernandina Beach (even referencing the same model of aeroplane as the inspiration for its form), yet it uses it in a less explicit manner. The final result, which is much better, was defined not only by less restrictive hurricane resistance requirements but also by the fact that the building appears light thanks to its materials and good proportions. Its plan is asymmetrical and the building itself has the shape of a wedge on which a single wing of a roofing, shielding an open-air meeting space, has been placed. The layout of surfaces only symbolically resembles an aeroplane’s body and wings, yet it does not fail in producing the required associations. It is a better situation, as it invites the viewer to participate in a more elaborate game with the imagination. The project also proves that even a small building is capable of bearing a large load of metaphorical references, gaining in expression without losing its compositional integrity.

5. CONCLUSIONS

As civil engineering develops and architecture’s status as an academic field asserts itself, the significance of metaphor in designing architectural form can hardly be seen to decline and give way to rationalised methods of determining a building’s shape. After the Modernist overappreciation of the plan (as a generator of architecture) and function (as the leading force that the subservient form was to follow), a metaphor-based message remains important and sometimes even appears to be the most significant.

Architecture with a strong symbolic expression is used in propaganda, satisfying socio-political ambitions of state-operated developers. At the same time, as the presented cases of small-scale buildings have proved, local communities and individual consumers attest to their attachment to narrative architecture. This need endures and can be reconciled with the theory and practice of contemporary architecture. Here it should be highlighted that, although metaphoric form is a solution that is appropriate for the architecture of aviation, it bears the danger of superficial labelling,²⁰ as simple symbolism and a literal treatment of one’s inspiration can be a source of poor architecture.

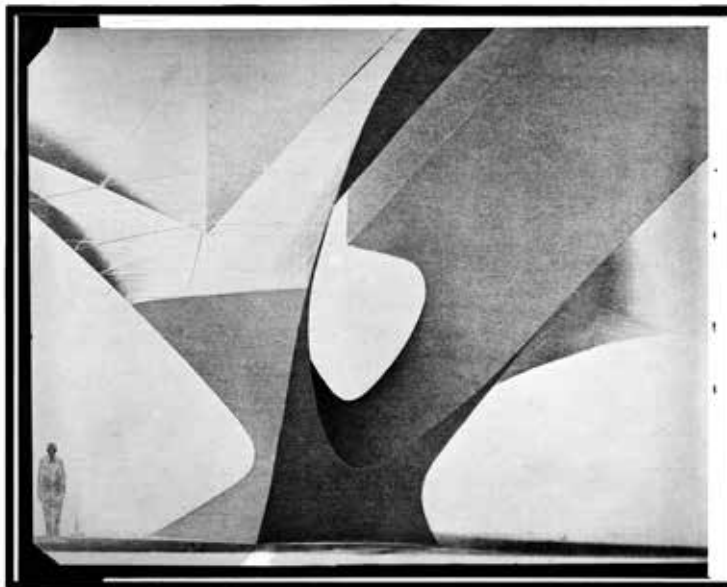
The dynamic development of civilian aviation over the last decade of the twentieth century and the first two decades of the twenty-first century was abruptly put to a halt due to an unforeseen global health crisis. Its scale and consequences remain difficult to ascertain (in the middle of 2020). However, based on the collected observations, it can be concluded that it will have severe consequences for global air transport. This will lead to the pursuit of more cost-effective technologies and limit demand for air travel. Aviation, and the architecture associated with it, will lose its current positive connotations as a development dynamo. It appears that a more pragmatic approach and a general atmosphere of concern for the future will not be conducive to large projects with symbolic messages in the coming years.

¹⁹ Original description of the proposal: *Carroll County Airport Terminal* [in:] Modus Studio, <http://www.modusstudio.com/projects/carroll-county-airport-terminal> (accessed: 14.06.2020).

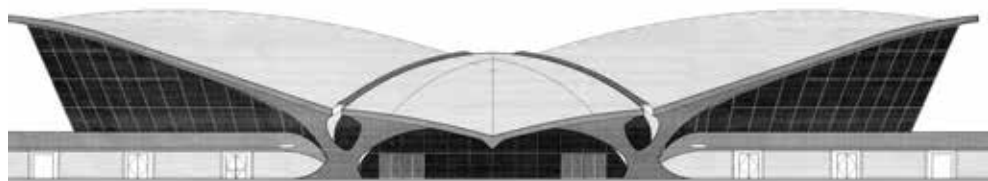
²⁰ R. Arnheim, *op. cit.*, p. 223.



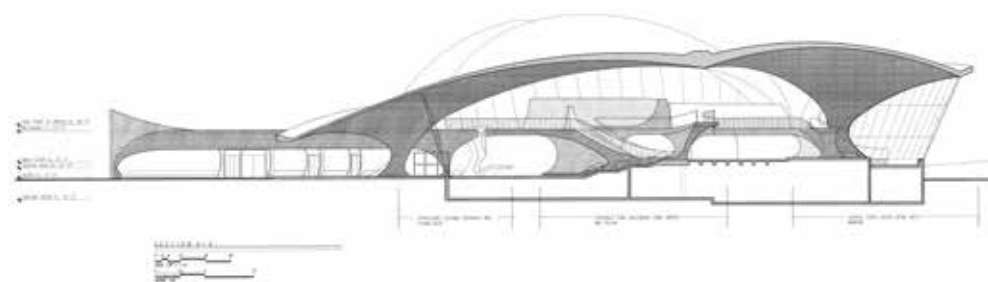
Ill. 1. Eero Saarinen, Trans World Airlines Terminal, John F. Kennedy International Airport (originally Idlewild Airport). The study of a support. Photo by: Balthazar Korab. Source: Library of Congress, <https://www.loc.gov>



Ill. 2. Eero Saarinen, Trans World Airlines Terminal, John F. Kennedy International Airport (originally Idlewild Airport). The study of a support. Photo by: Balthazar Korab. Source: Library of Congress, <https://www.loc.gov>



- III. 3. Eero Saarinen, Trans World Airlines Terminal, John F. Kennedy International Airport (originally Idlewild Airport). Historic American Building Survey. Frontal façade. Source: Library of Congress, <https://www.loc.gov>



- III. 4. Eero Saarinen, Trans World Airlines Terminal, John F. Kennedy International Airport (originally Idlewild Airport). Historic American Building Survey. Cross-section. Source: Library of Congress, <https://www.loc.gov>

References

- [1] *Airport Ashgabat Turkmenistan Een Turkmeense valk* [in:] Ilbelings van Tilburg architecten, <https://www.ibelingsvantilburg.nl/projecten/ashgabat-international-airport/> (accessed: 14.06.2020).
- [2] Arnheim R., *Dynamika formy architektonicznej*, transl. A. Grzełiński, D. Juruś, Oficyna, Łódź 2016.
- [3] *Beijing New International Airport* [in:] Rogers Stirk Harbour + Partners, <https://www.rsh-p.com/projects/beijing-new-international-airport/> (accessed: 14.06.2020).
- [4] Blackburn S., *Oksfordzki słownik filozoficzny*, transl. Ciesliński C. et al., Książka i Wiedza, Warszawa 1997.
- [5] *Building for Air Travel. Architecture and Design for Commercial Aviation*, J. Zukowsky (ed.), Prestel, New York 1996.
- [6] *Carroll County Airport Terminal* [in:] Modus Studio, <http://www.modusstudio.com/projects/carroll-county-airport-terminal> (accessed: 14.06.2020).
- [7] Charciarek M., *O metaforze w architekturze współczesnej*, doctoral dissertation, Kraków 1999.
- [8] *General Aviation Terminal Fernandina Beach* [in:] Passero, <https://www.passero.com/projects/general-aviation-terminal-fernandina-beach> (accessed: 14.06.2020).

- [9] Grobler A., *Realizm* [in:] J. Hołówka, B. Dziobkowski (eds.), *Panorama współczesnej filozofii*, Wydawnictwo Naukowe PWN, Warszawa 2016.
- [10] Hervé L., *Architecture of Truth*, Phaidon Press, London 2001.
- [11] Lakoff G., Johnson M., *Metafory w naszym życiu*, transl. T.P. Krzeszowski, Wydawnictwo Aletheia, Warszawa 2010.
- [12] Le Corbusier, *W stronę architektury*, Fundacja Centrum Architektury, Warszawa 2012.
- [13] Le Corbusier, *Aircraft: The New Vision*, The Studio Publications, London 1935, <https://www.bl.uk/collection-items/aircraft-by-le-corbusier> (access: 12.06.2020).
- [14] *Panorama współczesnej filozofii*, ed. J. Hołówka, B. Dziobkowski, Wydawnictwo Naukowe PWN, Warszawa 2016.
- [15] *Terminal Lotniczy w Modlinie* [in:] Kuryłowicz & Associates, <https://www.apaka.com.pl/pl/projekty/lotnisko-w-modlinie> (accessed: 14.06.2020).

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