FILM AND ARCHITECTURE – MUTUAL RELATIONS

n today's world, imaginary and real phenomena penetrate one another. What we see on the screens of cinema and television is often just a fiction. Film creation is usually only speculation about the real world around us. This imaginary reality, thanks to the imagination of filmmakers and the progress of digital media, often goes beyond technical and structural limitations. Film reality draws on the knowledge of the real world, but often escapes from the rules we encounter in it. In the film you can curl space and time, ignore the laws of nature and stir in the minds of viewers, widening the limits of their imagination.

Watching the film, we move to another world, which may seem very real to us, because we meet in it famous buildings and places we were. It happens that we can move in time and stay in the past, explore with the heroes baroque residences or medieval castles. But the most interesting is what we do not know, the future. Movies about the future forces filmmakers to work harder and use more imagination and creativity. That is why you need the knowledge and experience of building professionals, engineers and architects, to deceive the viewer and create an imaginary world that will be really possible.

As we know the imagination has no boundaries however, it is not easy to transfer to the movie screen what the creative mind has invented. Once we used clever stage design, illusion and mock-up. Later computer simulations, animations and special effects enabled virtual projects on an architectural, urban, and even global scale. Especially film fantasy uses new technical possibilities and risks, without which, completely unreal visions would never arise. You can even say that some of the movies we know were created only for aesthetic qualities, special effects or precisely designed scenery, which in themselves are their greatest asset and the main character at the same time.

1. BEGINNING OF THE XX CENTURY AND CINEMATIC FANTASY

The image of architecture in the film appears almost from the beginning of the history of cinematography. In addition, films featuring illusionist fantasies and introducing so-called special effects have already appeared at the beginning of the twentieth century and as Leon Barsacq claims in his 1976 book "Caligari's Cabinet and Other Grand Illusions" [1], the fantasy developed by George Miles [2] over 100 years ago has set some new frameworks and criteria for cinematography and led the film out of the primitive phase of shooting images with just one shot. By accident, he invented the technique of freeze-frame and introduced it

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[1] L. Barsacq, 1976. Caligari's Cabinet and Other Grand Illusions. Brown and Company.

[2] George Miles (1861-1938) – French illusionist, director and film producer, pioneer of cinema, called " wizard of the screen ", inventor of numerous movie tricks. https://pl.wikipedia.org.

to the film several different scenes recorded after a pause, which gave the effect of a three-dimension architectural space.

The first important movie from the fantastic trend that went to history, also thanks to the creation of great spatial sets, is "The Cabinet of Dr. Caligari", a silent movie from 1919, directed by Robert Wiene. The film tells the story of a mad doctor and his faithful lunatics and their links to a series of murders in a small German town. The film was made in Germany, which at that time was the center of the development of Expressionism in architecture. The action takes place in a wild, surrealistic setting designed by three expressionist painters: W.Reimann, H.Warm and W.Rohrig. Scenography was created from deconstructed, stylized surfaces that deformed reality. The effect of plasticity is complemented by the contrast of black and white. Of course, this kind of dramatized stage design meant that the film not only gained extraordinary visual setting, but also turn out to be very popular. Once drawing inspiration from painting, to this day this movie inspires filmmakers and architects. The cardboard decorations of this film became the inspiration for the interior design of the Center for Film and Visual Media at the Birkbeck University. The architects[3] wanted to make it like a frozen motion, freeze frame of the film. They have decided to copy black and white images from the cult horror movie and give them a new color expression[4].

Following further in the cinema history, we observe a growing acceptance of the science-fiction cinema. Certainly it was due to some desire to escape from reality, which at that time was not cheerful. So the mutual influence of film and architecture is undeniable. Reaching the memory lane to the year 1926, when the film "Metropolis" was made, the architects began to openly admit to a huge impression and the impact it has had on their creativity and perception of urban space. This was at that time the most expensive silent film production, located in the futuristic city. This monumental work shows the closed, isolated society of year 2026, whose organization is based on limiting the freedom of the individual through the subordination of citizens to dictatorial system of government. The city is governed by a small group of privileged philosophers living in luxurious skyscrapers, while in the suburban settlements live workers who keep the city alive. The film is today counted among the classics of cinema and was directed by Fritz Lang. The huge role of architecture in this film is probably thanks to the fact that Lang before he was a leading founder of the German Expressionism of the interwar period, he previously studied architecture at the Viennese Technical College. Inspiration for the director, when he started working on "Metropolis" in 1924, was a panorama of contemporary New York, which was of course completely different from what we today associate with Manhattan. At that time, there were not even the city's most distinctive skyscrapers such as the Empire State Building, but Erich Kettelhut, who designed the sets for the film was inspired by a 1911 building, designed by the modernist architect Hans Poelzig. The building known at that time in the whole Germany under the name of Upper Silesian Tower[5] was

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[3] London studio „Surface Architects".

[4] http://www.sztuka-architektury.pl/article/4899/stopklatka.

[5] The tower was damaged during the war and later Pavilion 11 was based on its foundations and topped with an openwork needle, which today is a symbol of Poznan International Fair.

located in Poznan and was one of the first buildings in the new art style, which soon became popular in the United States as Art Deco. Inspired by this tower, the scenographer gave his buildings a more massive proportions. He designed them on a circle plan, even more emphasizing their weight. In this way, using his vision he brought the world of architecture closer to average viewers and introduced them to what they did not know so far. Undoubtedly, the film "Metropolis" has opened the way for science-fiction movies and inspires contemporary filmmakers. Stanley Kubrick, Ridley Scott, George Lucas[6] and other artists presenting the future, to this day they are grateful and obliged to Lang for his brave vision of the city. For example, the gigantic, massive pyramids of Ridley Scott's "Blade Runner" are surely appealing to this classic. Definitely, they are closer to the tower in Poznan than to the architecture of real Los Angeles, where in 2019 the action takes place. This 1982 film had such a huge impact on the development of the past 35 years of sf cinematography, computer games, Japanese animation and comics, that with no doubt we can say that the Upper Silesian Tower is evolving and inspiring until today.

Of course, before contemporary artists have rediscovered „Metropolis", a lot of movies related to this one have been made. Today we classify some of them as classics, starting from the romantic musical "Just Imagine" from 1930, which takes place in the scenery of New York in 1980. This film is interesting in its vision of technical development and transport in the city. Metropolis of the future shown in this movie focuses on movement, communication and activity of the inhabitants. There are plenty of cars moving everywhere on multi-lane, wide roads. Communication takes place at nine levels, and between dignified in its size skyscrapers, appear hanging bridges and passages. This is not all, the film gave the opportunity to show the city, as the airspace above it, where residents are moving through individual small aircrafts landing on the roofs of buildings. The film image was based on the Lower Manhattan, with its angular grid of streets and tightly arranged buildings. However, the city of "Just Imagine" has developed this urban layout creating a more rigorous, band system of crowded buildings, separated by much wider transport arteries, just to create airspace between tall buildings. Moreover, some of the facilities reach up to 250 stories and seem to be built above the existing structure of the city, reaching up to the sky. This city from "Just Imagine" is indisputably associated with the works of Italian futurist Antonio Sant'Elia, which drawings, obviously drew inspiration for the film, after the death of the architect (1916). In 1912-1914, this designer created a series of perspective drawings entitled "La Città Nova" (New Town). The drawings were inspired by the architecture of the great American cities known for him only from books and magazines. In an excellent way Sant'Elia has presented on his projects, the modern organization of development and communication. He illustrated towering skyscrapers, overhead city railways, and a huge airport. The Sant'Elia projects are primarily a multilevel structure, a futuristic vision that grows out of the love of machine, movement and great masses. Italian architect, sees his industrial city of the future as a gigantic machine. Under the dominating skyscrapers of reinforced concrete, he placed power and telecommunication networks. This solu-

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[6] Leading filmmakers of science fiction.

tion breaks with architectural tradition and symbolizes progress and the pace of life. These drawings were lately widely published and became an inspiration for architects in the 20s, including Le Corbusier.[7] Thus, the history of cinematography and architecture developed almost parallel. Once again we have an example of how architecture inspired the movie, and film developed architecture even more without any inhibitions, creating a surprising and fascinating images, to give back what was taken from reality and become an inspiration for modern architecture.

Another, milestone movie in science-fiction cinematography history, was a picture titled "Things to Come" (1936). This is the first movie showing the true, honest picture of utopia, an ideal city functioning on the principles of justice, solidarity and equality, even if the achievement of such a goal would require the destruction and rebirth of society in better shape. This British fiction directed by W. C. Menzies is based on the satisfaction of the people living and working in a clean, pleasant environment. It is far from the grim image of "Metropolis". The city in „Things to Come" is led by scientists and philosophers who try to make decisions for the good of the whole world, at the same time leaving room for individualism, satisfaction and happiness of every citizen. However, coming back to architecture, it is worth focusing on the fact that such an extensive vision of society required the right scenery to illustrate that utopia. The director in his aspiration to create a perfect city has established a partnership with a large group of architects and set designers. Menzies was able to collect various ingenious architectural designs and styles, to mix and match them together to form a breath taking vision. Of course, he benefited from the help of many well-known artists at the time, but the biggest inspiration brought him Le Corbusier in his projects of the future cities "Radieuse Ville" (Radiant City – 1930) and the Ville Contemporaire (1933). This project has become one of the most important but also the most controversial urban concepts of the twentieth century[8]. Le Corbusier's visions strongly influenced post-war urban planning. Despite the good and sincere intentions of the architect, today they are often seen as inhuman and deaf. Quite different from the movie "Things to Come" inspired by those projects. Of course, architectural ideas created by modernists were not directly incorporated into the film as a ready-made scenography project, but many of them were taken from them. First of all, high-rise buildings and multilevel communication were introduced, as well as omnipresent architectural whiteness and large glazing - allow more space and sunlight to penetrate the interior. The city was designed so that pilots have access to each level. All residential apartments are equipped with hanging gardens and the amazing, unobstructed view of the space around. It was not a problem in a city built on a hill and connecting to nature in a direct

[7] C. Jencks, 1980. Architektura Późnego Modernizmu. Arkady Warszawa.

[8] Creating a model of a modern city, Le Corbusier has drawn on the earlier visionary projects of Tony Garnier and Anton Sant'Elia. In the concept of "Radiant Citie" Le Corbusier used the division of the city into zones. Spaces spread in the form of horizontal, expanding strips correspond to different functional zones, such as housing, industry, communication, recreation, health care. Thanks to the elevation of all designed buildings on the pillars above the ground level, architect has gained a place for green areas. The division of the city into levels was made through pedestrian crossings, conducted over the streets. *Ibidem*.

and unbreakable way. The filmmakers certainly created a utopian vision of the city that would be a dream come true of Le Corbusier.

2. SECOND HALF OF THE 20TH CENTURY - DARK VISIONS OF THE CITY

In the second half of the twentieth century filmmakers are increasingly showing us metropolises as an example of destruction and chaos, the crowded, unhealthy environment that it may be in the future. Post-war atmosphere made visions of future cities have become a reflection of the fear, reigning for so many years. Horror movies were more often produced. They portrayed an alien invasion, or an overgrown monster turning the city into dust. The architecture in these films did not differ from everyday life and was mostly a reflection of what could be seen in the reconstructed post-war reality. They were rather uninteresting and unambiguous productions, rather focused on entertainment than on the social problems of future cities.

In the early 60s, and later development of late modernism and post-modernism in art and architecture, there appeared more interesting visions of the future. It was a time of social change, liberation and freedom. The 1960s are also a breakthrough for movies. In 1968, Stanley Kubrick produced a film entitled " 2001: A Space Odyssey" and thus he raised the bar of artistic and financial support for this type of filmmaking. By taking care of the details and realism that has never been seen before, he brought back a good style of science fiction productions, what could they boast of in the twenties and thirties. In pursuit of perfection he engaged to the work on the movie, experts in various fields, just to be sure that the film's journey into space will be as close to reality as possible. In collaboration with NASA, which has been dealing with space issues since 1950, Kubrick has restored the seriousness and importance of this film genre. The success of the Apollo spacecraft and the successful landing of man on the moon completely changed the perception of space availability by society. At the same time, when it became a dream and a hope, they began to talk on topics important for our planet, namely overpopulation and environmental pollution. As a result, the pessimistic scenario of the future continued to dominate in the seventies and early eighties.

3. LATE 20ᵀᴴ CENTURY AND TECHNO-AESTHETICS OF ARCHITECTURE

The last years of the twentieth century are the time when architects felt completely free from discipline, history and traditional methods of work. It was started to create original, flexible or even mobile projects. The development of computerization, the availability of CAD software and 3D applications has raised the architecture and film to a higher level. This gave new possibilities for exploring space, creating new concepts and structures. Buildings designed by such architects as Frank Ghery, Zaha Hadid, Richard Rogers, Norman Foster and many others, are beyond the imagination of their creators, mostly based on the power of computers, needed to deconstruct or construct ingenious forms and structures. At this time, a science fiction film based on the same production methods as architecture, went one step further by creating images not limited by imagination, but also escaping from the laws of physics. Creating images that are not subject to gravity, it has become a very influential and inspirational for designers.

The term Fantastic Architecture created in the sixties, twenty years later, has been interchangeably used with the term Science-fiction Architecture. The line between cinema, architecture and computer simulation has become very thin, and architecture and film have become mutual inspiration more than ever before.

In 1982, in California, there was created a film that, as it turned out later, has earned the honor of being a worthy successor of "Metropolis". British director Ridley Scott filmed the prose of Philip K. Dick and in cinemas appeared the previously mentioned "Blade Runner". Los Angeles, from 2019, astonishes us with a sober urban design. The creators of the film have had an idea to put on the old buildings at zero level, bearing the signs of many different styles, another building - grey, dead skyscrapers, with walls covered with huge billboards and neon. The city is dominated by the monumental buildings of the Tyrrell's corporation. The theme of "Blade Runner" with its wonderful visual setting, fascinates and truly reflects the life of the city. Ridley Scott was far from clean, sterile frames known to us from Star Trek. He proposed a great, pulsating with Energy dumpster, where the remnants of humanity live. Three years later, Los Angeles is again looking forward to its bad future. In "The Terminator" by James Cameron (1984) in 2029, from the great city LA, there will remain only the battlefield between men and machines. In the future, the city was transformed into ruins, filled with iron, where it is difficult to see the remnants of the metropolis. Despite this, Los Angeles was one of the main characters of this film. Then, in 1988, the continuation of the "Highlander" saw the light of day. The future city in this film is covered by an energetic shield, and it prick the eyes with expressionist madness. Scenography of this film is unfortunately the only advantage of this production. At the same time, it was the inspiration for creating a visual style of the "Dark City" by Alex Protas (1998) and Tim Burton's "Batman" (1989) - which has a well-developed artistic vision and is placed among the most spectacular science-fiction movies[9]. The vision of Gotham City is a ghostly image, composed of elements of modern, industrial and retro style, mixed together. You could say that Gotham City is a comic version of Lang's "Metropolis".

As you can see, the science-fiction genre was dominated by rather dark visions of the future, but at the beginning of the nineties it started to evolve into more vivid visions of the future. In Paul Verhoeven's "Total Recall" (1990) we can watch the colony on Mars. It's not just a city of the future, it is primarily space civilization where there is no air. The need to protect against cosmic radiation has forced the construction of glazed, openwork structures inside the Martian canyons. In 1997, Luc Besson in "The Fifth Element" introduced New York in the year 2214. Monumental creation of the city is the beginning but also inverse of the modern archetype of the city vision from "Blade Runner". Here, New York City is equally crowded, bustling and dirty, but it does not hide anything behind the facade of the night. The city is bright, colorful, even vivid. There is no atmosphere built with sophisticated lighting. At the end of the 1990s, in two significant films, city decorations were fascinating, though they were not typically futuristic metropolises. One of the most original visions of the future was created by the Wachowski brothers. Their "Matrix" (1999) turned SF cinema upside down. One of

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[9] Anton Furst received an Academy Award for his stage design for "Batman".

the main advantages of this film is the impressive metropolis ZION, gigantic, underground city, hiding the last bastion of humanity. Owen Paterson's stage design was based on crazy sketches by G. Darrow. It impresses with the boldness of the vision and the complex approach. The rawness of endless steel structures is so realistic. This world is an industrial bunker and a junkyard at the same time. It wakes in the audience some fascination with its enormity and functionality. By contrast, the nameless, computer-generated city, the titled MATRIX is a symbol of the development of our civilization which is going for self-destruction.

In the same year, over the ocean, Steven Spielberg has completed the "Artificial Intelligence: AI". In this fascinating story of finding the identity of a robot, the main character's journey goes through two cities of the future. First we visit Rouge City, a fabulously colored, future version of Las Vegas. Then we get to New York, which is flooded with ocean. Here we can see the Statue of Liberty, Chrysler Building and both WTC towers, covered with water. This image is horrifying and fascinating at the same time. One year after "A.I.", Steven Spielberg surprised us with the well-made sensational movie titled "Minority Report", which is taking place in Washington in 2054. On the example of this film, you can see most clearly how much modern artists owe to Fritz Lang and Ridley Scott. Here, futuristic agglomeration of steel and glass, is full of magnetic highways. It was taken directly from "Metropolis", but in "Minority Report" everything is far more transparent and full of breath. Modern urbanism does not create a narrow, claustrophobic labyrinth.

4. NEW MILLENNIUM – IN SEARCH OF A GREEN OASIS

In the new millennium, filmmakers are focused on the screen versions of comic books and superhero stories, or making remakes of science-fiction classics. The image of destruction is still popular, and only a small group of films managed to create some original visions of the future. For example, a different image appeared in "Equilibrium" (2002). Here the city is subordinated to order and symmetry – which was perceived for centuries as a determinant of harmony in architecture. You can see the obvious reference to the fascist monumental buildings.

In the same year, another very original vision of the future appeared on the screens. "Time Machine" is an adaptation of H. G. Wells' novel, and it shows the distant future of the world in the year 802701. Here people live on the rock walls, defending themselves against the inhabitants of the underground. The idea is a bit absurd, but it must be admitted that Oliver Scholl's stage design provides a nice visual experience to audience.

This is just another example of the fact that the city of the future can be differently understood. It does not necessarily have to be a glittering metropolis with shining skyscrapers. Today, when architects and scientists discuss sustainable development and ecological awareness of society grows, the image of the future city also changes. Lately, we can watch such films as "Tomorrowland" by Brad Bird (2015), where in addition to advanced technical development, future city is overflowing with sun and greenery. Or, on the other hand, the Earth is dying, but green oases are drifting in its orbit, as it is in Neil Blomkamp's "Elysium" (2013).

Today, also the contact with the audience is changing, as well as the contact with the users of real space. Interactions, modifications and variants of the

plot are introduced in the Cinema, while smart buildings, that respond to user needs, are built in the real world. Moreover, we can experience spatial installations that change under the contact with human.

In addition, contemporary virtual architecture is available not only for professionals, but also for the average user, even for children. It's all thanks to computer games, where we can create buildings, build visions of imaginary cities, or just as a game user, we can visit historical and existing cities or their future visions.

5. CONCLUSIONS

The image of the future cities has become well-established in the minds of viewers. Movies have accustomed us to the mighty vision of endless metropolis. Mentioned examples certainly do not exhaust the topic, but I hope they illustrate the inseparable relationship between film, architecture and technique. It was the technical progress, and then the development of modern digital technologies, that most stimulated creators to go beyond norms and known patterns. The development of computerization, and above all the applications of CAD and 3D, elevated the architecture and film to a higher level. Architects and filmmakers have not only benefited from the availability of modern tools, but have also been inspired by them. They have been creating the visions of cities dripping with technology, where technical development and urban communication create multilevel living structures that expand to the airspace above them. Visions that grew out of love of machinery and involved space technology, until recently were only a mirage of the future, seen only on paper or cinema screen. Today, these images become commonplace for us. We can enter buildings that were once fictitious. It can be said that the future is happening in front of our eyes. Reality is constantly racing with fiction.

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SUMMARY. We live in a time where imagined and real world penetrate each other. Film fiction is just speculation about reality, and it often goes beyond technical and structural limitations. It extends the limits of the imagination, and at the same time take best ideas from the knowledge about the real world. Computer simulations, animations and special effects opened the way for the fantastic architectural projects, whether is only for the film set design, or to the real world architectural realizations.

In this paper, the author presents an overview of film fantasy from the beginning of the 20th century. It analyses the influence of system transformations and changes in the architectural styles, on presented visions of the future cities. It shows the real impact of the development of architecture and urban planning on the art of filmmaking. On the other hand, it shows how the movies are going beyond the limits of reality, it inspires architects to take a bolder vision of the future. At the same time, putting the city as one of the main heroes, cinematography brings viewers to a difficult subject of shaping urban spaces with respect to all communication and organizational problems of metropolis.

Key words: movie, architecture, scenography, fantasy