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GREAT WORLD EXHIBITIONS (1851-2022): MAIN EXHIBITION TOPICS AND OVERVIEW ARCHITECTURE IN THE WORLD IN THEIR TIME

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Abstract

Large world exhibitions are conceived as reviews of all the achievements of the individual man and his communities (states, companies, various associations and groups) at the highest possible level, with the highest and most authentic representativeness imaginable. In this way, the topic and content of this work is the most complex possible overview of architecture. In his practice as a university professor, the author very rarely met architecture students who were able to join a great architect with contemporaries from other scientific disciplines, art and philosophy. Similarly, for the students, citing examples of the most successful architectural solutions on certain topics and their precise placement on the time scale was a huge problem. Namely, not having an idea of a complete world architecture (on the complete space of the Earth and through the complete time in which we find preserved traces and complete architectural works), necessarily leads to a fragmentary understanding of architecture, which is necessarily impoverished. Today's opportunities to get to know architecture (as well as any other human achievement) around the world, leads to the appearance of plagiarism, which surpasses its ethical-legal dimension to such an extent that it can be considered the most disastrous for the process of 'searching for architecture', which is often more significant than architectural achievement in itself. The author is convinced that this work will help every reader in his 'search for architecture', in the search for answers to questions about the essence of man, society, nature and their mutual relations. He should encourage young people that each of them, as well as the physical and social space in which they live, has authentic values that can be expressed through their creative placement in a mosaic of general human, general social and universally natural values. If, along with following one of the exhibitions, the reader of this work reads a literary work, listens to a musical composition, visits a theater performance, studies a scientific or technical discovery from the time of the exhibition in question, then he will 'relive' the image of the time to such an extent that he will attend the reality of the exhibition, more realistically from any virtual performance. This work refers to the perception of architecture (and its natural and social environment) in the broadest total and in the most precise detail.

Keywords: *Great world exhibitions*

1. Intruduction

As a differentia specofica that distinguishes man from other living beings is his reason, that is, his ability to find cause-and-effect relationships in his environment [1,2,3,4,5,6,7,8,9]. The first visible result of the knowledge of these relationships manifested itself in the possibility for man to avoid some unwanted consequences or to meet the favorable course of natural processes for him. However, other living beings, thanks to their innate instinct, can sense some natural phenomena and adjust their lives according to them. Another visible result of human knowledge of the natural environment is manifested by human work, as a purposeful, conscious and organized activity whose goal is the realization of material and intellectual achievements that satisfy a more or less wide spectrum of individual human or collective (social) needs. As a manifestation of the human essence, work has been determined from the very beginning by its two basic components or dimensions: the means for work and the relationships in its process. These components, by themselves, are generic, developmental, evolutionary, and in a mutual relationship cause-effect and inseparable: the degree of development of the means of

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production necessarily corresponds to the degree of production relations. This dynamic balance has been at the basis of the development of both man and society, until today, and it will be in the future as well. The stages of their development and established relationships (which lasted longer or shorter) determined socio-historical epochs. The first division of labor was a direct consequence of the conditions of the natural environment, and then of the physiological and mental predispositions of human individuals. So, for example, some natural environments were suitable for animal husbandry, others for farming, some for hunting, some for fishing... By nature, men were physically stronger than women, while women (again, by nature) showed greater concern for the family, raising the young generation, leading the family... Some individuals (both men and women) possessed an extraordinary gift for making clay dishes, tools, clothes and shoes... In all the cases mentioned, as a result of the special nature of nature, surpluses of certain products (meat, wool, leather, cereals...) appeared on one side, or shortages on the other side. This situation led to the exchange of products, first the simplest, product for product, and later more and more complex, which resulted in the generation of complex relationships between people, social groups, from geographically narrow spaces to the global plan on Earth. Soon, work began to acquire many more dimensions that expressed the human essence, so that its initial basic dimension, the provision of food for life, was enriched. The first exchange of goods (natural exchange, barter) was already perfected in the prehistoric phase of the development of man and society in the form of intermediaries between the producer of a commodity and its consumer. That intermediary is a merchant, who will improve his work to the extent that at some point he will become a decisive factor in the creation of social relations. One of the most important phenomena in the development of trade was the emergence of money. It is a universal commodity, an equivalent for every product, an equivalent for the value of human labor in the last resort. This exceptional role, at the very beginning of the appearance of money, could have been played by stable, rare and valuable goods that, in their small physical dimensions, 'kept exceptional human work'. As a rule, the role of the first universal goods (money) was played by valuable metal products, first those that were useful (various tools), and later as pure money (coins made of gold, silver, copper or alloys). Money gained such power over time that to this day (as capital) it has become a measure of the power of the individual man and his collectivities. Capital has also become a measure for achievements in science, technology, art, sports... To be rich means to be powerful, to be at the top of the social pyramid. This maxim has determined the overall development of humanity, from prehistory to the present day, and will continue to do so in the future. The greatest paradox of today's humanity is that the possibility of producing the goods necessary for the life of all people on planet Earth is so great, and that there are billions of hungry people and those who live below the standard of life worthy of a human being. At the same time, the wealth of some individuals is tens of times greater than the wealth of many countries. The appearance of some ideas (such as the idea of communism, for example) is more or less short-lived, living as an idea about the possibility of a 'just world'. Large world exhibitions bear witness to the creativity and high reach of the human spirit in all spheres of its multiplicity and appearance. Equally, large exhibitions give a picture of those sides of the human essence that accompany great achievements, as their 'dark side' [2] (Figure 1).

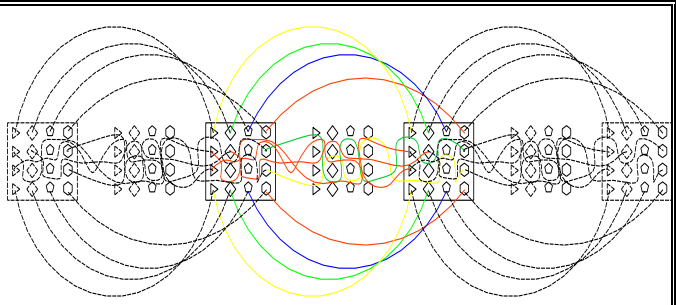

Figure 1. The site of the Great World Exhibitions in history. Evolution of ideas and knowledge (Prof. Dr. A. Hadrovic, 2015)

2. Exhibitions

In the broadest sense, we mean the public exhibition (showing) of the products of human labor with the aim of presenting their creator as widely as possible [2]. Since the products of human labor are most often the result of the basic occupation of the individual, that is, the result of the work of human collectivities, the goal of the exhibition is also their sale, so that the spectrum of all other needs that characterize the individual or his collectivities can be satisfied with the 'earned money'. Exhibitions have two basic groups of characteristics that determine them: rational (practical, expedient) and symbolic (manifestation). The rational characteristics of an exhibition are aimed at achieving as close contact as possible between the exhibits of the exhibition and the potential visitor of the exhibition, that is, the buyer of the exhibit. As the exhibition is organized by an intermediary (whose business is the organization of exhibitions), the exhibition is spatially arranged in such a way that a large number of people can visit the exhibits, in the shortest possible time, in maximum comfort. At the same time, the exhibition space itself with exhibits represents only a part of a complex spatial-physical and organizational-functional whole, which includes segments that should provide: Space for exhibiting exhibits, Storage space for exhibits (goods), Sanitary facilities for exhibitors (and staff servicing the exhibition) , Sanitary facilities for visitors to the exhibition, Solution for goods and visitors traffic, Ensuring accommodation for exhibitors (if the exhibition lasts longer than one day), Equipping the exhibition space with the necessary infrastructure (traffic of all kinds, electricity, water and sewage supply, all types of communication links that are developed by that time, fire protection systems, hygiene maintenance...). The symbolic (manifestation) characteristics of the exhibition are all those effects of the exhibition that a person perceives with the senses (sight, hearing, touch...) that create an image of the exhibition (country or city - the host of the exhibition) and of individual exhibits in the visitor's mind. In this sense, every exhibition is motivating and stimulating for progress in all spheres of human life and work. Every exhibition is an opportunity for new exhibitors to show that they are also able to compete with already established exhibitors (countries, cities, companies, individuals), that is, for exhibitors to come up with new solutions that have not been seen before. Every exhibition, regardless of its level, shows the 'ladder of power' and predicts new possibilities. By going through a series of exhibitions, trends can be observed, new solutions can be predicted and, in this sense, action can be taken. Because of all this, exhibitions are an extremely dynamic phenomenon where good observers can read the past and present and predict the future. The concept of exhibition became more complex and developed over time (both in terms of breadth and precision) so that today we have many specialized objects, which, roughly speaking, could be grouped as:

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Trade objects, Museums, Exhibitions (with different thematic orientations and different durations, from several days) up to several months). Each of the mentioned groups of objects is complex, with many different variants that are determined by the type of exhibit (goods), spatial scope (city, region, country, general planetary character), time orientation (prehistory, modern, contemporary, future...), permanence of its display (which can be supplemented within its basic type), more or less constant openness to visitors... In addition, each of the exhibits (goods) that is suitable for one of the mentioned groups can also be found as exhibits in another group of objects (as a 'borrowed' exhibit) in order to make the presentation (exhibition) of a country as interesting, attractive, striking and distinctive as possible. The content of this work is focused on large world exhibitions (EXPO), but through the presentation of the history of exhibitions, the influence of the organization and functioning of public areas, trade and all forms of public (mass) manifestations will be visible [2].

History of exhibitions. The exhibition has its origin in the very nature of a living being, as its need to show itself to someone (partner) in order to survive in the natural (and social) environment. As the need for existence is innate, showing it to someone is an innate feature of every living being. At the same time, every living being shows what represents it most strongly. This display in the animal world is an innate and hereditary property, which is repeated in the same way, identically as long as the species in question exists. Man, on the other hand, being a rational being, designs his own representation, repeating already seen patterns but also designing new ones. Thus, some individuals will try to show their stature, others physical corpulence, some hair, some speech (song), some certain skills and knowledge (...), all with the aim of achieving the best possible place on the scale of a certain evaluation. From a need given by nature, exhibiting (some good) became an extremely purposeful action that took place in an open space and then in a designed and purposeful closed space. Open spaces were places near which as many people as possible communicate (roads, road intersections, village and town squares, convenient places next to temples and sanctuaries...). Closed spaces intended for the display and sale of goods were built in all those places where people gathered or passed by, as needed. Some goods were part of people's daily life (groceries), some were determined by the season (seasons and the actions that take place in them), some by important events in the life of individuals, families or the wider community (birth, death, marriage, family holidays, ...). Thus, the spaces where various goods were displayed (sold) had a permanent character, and some were seasonal. The history of exhibitions (in the broadest sense of this term) should be followed through the history of the store. Architecture has always been a physical framework for a certain type of exhibition (store). The intensity of trade was commensurate with the degree of economic (and general) development of a city, region or country. We should look for the best examples of spaces and objects for exhibition (and trade) in the most advanced civilizations and cultures [2].

Modern exhibitions. Traditional folk seasonal gatherings-fairs were a good basis for establishing an economically expedient and efficient way of presenting the production of all kinds of goods and devising an efficient way of selling them. For the purpose of organizing fairs, the state (region, city) founded specialized companies that, in order to achieve the greatest possible efficiency, were exempted from paying taxes (or their significant reduction) on the goods that were traded during their holding [2].

3. Great world exhibitions

The nineteenth century is one of the most dynamic periods in the history of mankind, which was marked by epoch-making scientific discoveries, which, applied to technical inventions, were implemented in everyday life. One of the most significant joint results of all discoveries is the increase in the intensity and speed of communication of people, goods and ideas on a global world level[1]. Scientific and technical discoveries[2] changed people's way of life, social organization, geopolitical picture of the world in a relatively short time and imposed new patterns of life in which every individual and his social community had to study and work intensively. The development of technique and technology becomes an input for new relations in the economy: the establishment of the Customs Union in Europe (1834), the establishment of the Central Bank (Prussia, 1846), the Free Trade Agreement between France and England (1860), the Danube and the Denmark Strait are open for free navigation (1857). As much as the benefit of a discovery accelerated the progress of the people and communities who were the first to use it, not using it meant falling behind for others. For this reason, the need for almost immediate familiarization with all new achievements anywhere in the world became important and imposed itself as something quite natural and appropriate for the new era. The world has come to a paradoxical situation: the need to erase borders of every kind was visible as a prerequisite for faster and universal progress, but the progress (which could not be followed by all people, nations and states) generated deeper and sharper boundaries between the developed and those who they are not.

Great world exhibitions have become a necessity and will be (from the first one held in London in 1951, to those yet to be held) the clearest and most representative image of the human-individual and all levels of social communities [2]. For this reason, in the content of this book that follows, an overview of the most important parameters of the global social community in the world is given (historical and political events, architecture, philosophy, science, technical solutions (inventions, patents), painting, sculpture, literature, music, photography and film) so that an individual exhibition, as a sublimate of the total world community,

[1] One of the most important events, that is, facts that happened in the 19th century (which time and again confirmed, until today) is the founding of the United States of America (1783).

[2] Here are some of the achievements:
- The first use of a steam engine in Europe (1781),
- The first modern blast furnace for steel production (Silesia, 1828),
- The first railway (France: Paris-St. Germain, 1837),
- Steel production process by coking (Ruhr region in Germany, 1849),
- Krupp developed the process of obtaining steel according to the Bessemer process (Germany, 1855),
- Gilchrist-Thomas method of steel production, 1879,
- The first gasoline-powered car (Benz), 1885,
- The first chemical analgesic (Hoecht), 1888,
- The first electric tram (Florence), 1890,
- Trans-Siberian Railway, 1891-1905,
- The first radio transmitter (Marconi), 1896...

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would be comprehensible[3]. Over time, major world exhibitions have become the most important world events and major business ventures of the countries that organized them. This is how the organization was established with the aim of organizing (selection, determining the calendar, defining the rights and responsibilities of organizers and participants...) world exhibitions. It is about the Bureau International des Expositions (BIE), which was founded as The 1928 International Convention)[4] on November 22, 1928 and is headquartered in Paris. The members of the BIE are the governments of the signatory countries of the Convention (BIE). BIE has its General Assembly, President, Executive Committee, Administration and Budget Committee, Rules Committee, and Information and Communication Committee. The BIE Secretariat, headed by the Secretary-General, manages current affairs in accordance with the instructions of the General Assembly and the Executive Board, and represents the formal link between exhibitions and BIE members. Two protocols, the first signed in 1948 and the second signed in 1966, regulate the frequency of exhibitions. The convention is continuously, until today, supplemented with new protocols, all with the aim of efficiency of application procedures, participation of a larger number of countries (in organization and participation in exhibitions), flow of information, ensuring the most concrete and widespread effects. According to BIE rules, World Exhibitions are categorized into two basic groups [2,11]:

1. International Registered Exhibitions
2. Internationally recognized exhibitions

International Registered Exhibitions meet the following criteria (since 1996):

- They are held every five years. World Expos are treated as Universal Expos that treat topics important to the entire population on planet Earth,
- Participants are individual states, international non-governmental organizations (NGOs), corporations and other institutions,
- They last six months at most,
- The surface of the exhibition is unlimited.

International Recognized Exhibitions meet the following criteria:

- They are held once in the interval between two internationally recognized exhibitions and last no longer than three months. These exhibitions are treated as International Expos,
- The participants of the exhibition are states, international organizations (NGOs), corporations and their institutions,
- The theme of these exhibitions must be specific, specialized, and as such a basis for various disciplines: architecture, events, participants, forms of cooperation...,
- The exhibition area is limited to 25 hectares (ha), where exhibitors arrange pavilions that were (roughly) built by the host of the exhibition.

The fundamental purpose of world exhibitions is to ensure that all countries have the opportunity to show the whole world their view on a specific topic treated by an individual exhibition (Figure 2, Table 1). A special group of specialized international exhibitions is represented by the International Horticultural Expos, held under the joint patronage of the Bureau International des Expositions (BIE) and (AIPH). These exhibitions should meet the following criteria:

- These exhibitions can last a minimum of three months and a maximum of six months. They take place every two years, in different countries. If they are held more than once in one and the same country, then the time gap between two consecutive exhibitions cannot be shorter than ten years,
- The size of the exhibition area should be greater than 50 hectares (ha).

All International Registered Exhibitions will be covered in this paper.

The BIE also recognizes a special exhibition, the Milan Triennial Exhibition of Decorative Arts and Modern Architecture, or La Triennale di Milano. This exhibition was founded in Monza (1923) as The first Biennial of Decorative Arts. Later (1933) the seat of this exhibition was moved to Milan (Palazzo dell' Arte). Founded as a showcase for modern decorative arts (and that of industrial production), with the aim of fostering the relationship between industry (the manufacturing sector) and applied arts, La Triennale di Milano is becoming one of the most important events in the fields of architecture, fine and decorative arts, design, fashion and audio-video productions in Italy [2,11].

Figure 2. Overview of the Universal Expo (World Exhibition): 1. The Great Exhibition, London, Great Britain (1851), 2. Paris International, Paris, France (1855), 3. International, London, Great Britain (1962), 4. Paris International, Paris, France

[3] The need to hold a major world exhibition, as something natural and appropriate for the new society, was clearly expressed by Prince-husband Albert at the preparatory meeting for the First World Exhibition in London (1850): „Whoever has paid some attention to the distinctive features of our era will not at any moment doubt that we live in a time of special events, an epoch that is very quickly approaching the goal towards which the whole of history strives - the realization of the unity of humanity“ [10,12].

[4] Membership to the BIE is open to any Government by accession to the 1928 Paris Convention on International Exhibitions: „This Convention shall be open for accession by any State which is a member of the United Nations, or any State which is not a member of the United Nations but which is a Party to the Statute of the International Course of Justice or any State which is a member of one of the specialised agencies of the United Nations or the International Atomic Energy Agency and also by any State whose application for accession is approved by a two-thirds majority of the Contracting Parties which have the right to vote in the General Assembly of the Bureau. Instruments of accession shall be deposited with the Government of the French Republic and shall become effective on the date they are so deposited“.1928 Paris Convention, Article 35 [11].

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(1867), 5th Austrian International, Vienna, Austro-Hungarian Empire (1873), 6th Centennial Exposition, Philadelphia, United States of America (1876), 7th Paris International, Paris, France (1878), 8. Melbourne Internationale, Melbourne, Australia (1880-1881), 9. Exposicón Universal de Barcelona, Barcelona, Spain (1888), 10. Paris International, Paris, France (1889), 11. World's Columbian, Chicago, United States of America (1893), 12th Brussels International Exposition, Brussels, Belgium (1897), 13th Paris International, Paris, France (1900), 14th Louisiana Purchase, St. Louis, United States of America (1904), 15th Liège International, Liège, Belgium (1905), 16th Milan International, Milan, Italy (1906), 17th Brussels International, Brussels, Belgium (1910), 18th Turin International, Turin, Italy (1911), 19th Ghent International, Ghent, Belgium (1913), 20th Panama-Pacific International, San Francisco, United States of America (1915), 21st Barcelona International, Barcelona, Spain (1929-1930), 22. Century of Progress, Chicago, United States of America (1933), 23. Brussels International, Brussels, Belgium (1935), 24. Paris International, Paris, France (1937), 25. New York World's Fair, New York, United States American States (1939-1940), 26th Exposition internationale du bicentenaire de Port-au-Prince, Port-au-Prince (1949-1950), 27th Brussels World's Fair, Brussels, Belgium (1958), 28th Century 21 Exposition , Seattle, United States of America (1962), 29th Expo '67, Montreal, Canada (1967), 30th Expo '70, Osaka, Japan (1970), 31st Expo '92, Seville, Spain (1992), 32 Expo 2000, Hanover, Germany (2000), 33rd Expo 2010, Shanghai, China (2010), 34th Expo 2015, Milan, Italy (2015), 35th Dubai (2020/2022), United Arab Emirates (UAE) .

Table 1: Main themes of EXPO

Number	Exhibition name and time	Host country	The main theme of the exhibition	Number of exhibiting countries	Number of visitors (millions)
1	The Great Exhibition, London, 1. maj – 11. oktobar 1851 BIE klasifikacija: Uneversal Expo (World Exhibition)	United Kingdom 	Industry for all Nations	44 (total exhibitors: 13000)	6.04
2	Exposition Universalle des produits de l'Agriculture, de l'Industrie et des Beaux-Art de Paris 1855 15. maj-15. Novembar 1855 BIE klasifikacija: Uneversal Expo (World Exhibition)	France 	Place the emphasis on work. Agriculture, Industry and Art	36 (total exhibitors: 23954)	5.16
3	The London International Exhibition on Industry and Art of 1862. London maj – 1. novembar 1862 BIE klasifikacija: Uneversal Expo (World Exhibition)	United Kingdom 	Industry, technology and arts	36 (total exhibitors: 29000)	6.10
4	Exposition Universelle (d'art et d'industrie) de 1867 1. april – 3. novembar 1867 BIE klasifikacija: Uneversal Expo (World Exhibition)	France 	Agriculture, Industry and Art	32 (total exhibitors: 52200)	15
5	Welt Austellung 1873 in Wien maj – 1. novembar 1873 BIE klasifikacija: Uneversal Expo (World Exhibition)	Austro Hungarian Monarchy 	Culture and Education	35 (total exhibitors: 53000)	7.25
6	Centennial Exhibition of Arts, Manufactures and Products of the Soil and Mine 10. maj – 10. novembar 1876 BIE klasifikacija: Uneversal Expo (World Exhibition)	USA 	Celebration of the Centenarian of the American Independence and of the Declaration of the 4th of July 1776. International Exhibition of Fine Arts, Industry, And Products of the Soil and Mines	37 (total exhibitors:30000)	10

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7	Exposition Universelle 1878 1. maj – 10. Novembar 1878 Uneversal Expo (World Exhibition)	France 	Urbi et orbi. Agriculture, Industry and Art	36 (total exhibitors:53000)	16
8	The Melbourne International Exhibition 1880 Oktobar 1880 – 30. april 1881 BIE klasifikacija: Uneversal Expo (World Exhibition)	Australia 	Arts, Manufacturing, Agriculture and Industry	37 (total exhibitors: 12792)	1.45
9	Exposició Universal de Bacelona / Exposición Universal de Barcelona 1888 8. april – 9. decembar 1888 BIE klasifikacija: Uneversal Expo (World Exhibition)	Spain 	Arts and Industry	30 (total exhibitors: 12200)	2.30
10	L 'exposition universelle de Paris de 1889 06. maj – 31. oktobar 1889 BIE klasifikacija: Uneversal Expo (World Exhibition)	France 	French Revolution (Celebration of the 100th anniversary of the fall of the Bastille)	35 (total exhibitors: 61722)	32
11	World's Fair: Columbian Exposition 1893 maj – 30. oktobar 1893 BIE klasifikacija: Uneversal Expo (World Exhibition)	USA 	Discovery of America. The City Beautiful Movement (A new philosophy of city planning that is based on a complex approach of connecting all the elements of a city in order to create a beautiful place to live)	46 (total exhibitors: 65000)	27.30
12	Exposition Internationale de Bruxelles 1897 10. maj – 08. novembar 1897 BIE klasifikacija: Uneversal Expo (World Exhibition)	Belgium 	Automobiles	27 (total exhibitors: 10000)	7.80
13	L 'Exposition de Paris 1900 14. april – 12. novembar 1900 Uneversal Expo (World Exhibition)	France 	Evaluation of a Century	58 (total exhibitors: 76112)	48.13
14	The Louisiana Purchase Exposition (St. Louis World's Fair) 30. april – 1. decembar 1904 BIE klasifikacija: Uneversal Expo (World Exhibition)	USA 	Louisiana Purchase	63 (total exhibitors: 15009)	19.70
15	Exposition Universelle et Internationale de Liège 25. april – 06. novembar 1905 BIE klasifikacija: Uneversal Expo (World Exhibition)	Belgium 	Belgian Independence (75th anniversary of the independence of Belgium)	31	7

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16	Exposition Internationale de Milan 1906 28. april – 31. oktobar 1906 BIE klasifikacija: Uneversal Expo (World Exhibition)	Italy 	Land and Maritime Transport	40 (total exhibitors: 35000)	10
17	Exposition Universelle et Internationale, Brussels 1910 23. april – 01. novembar 1910 Uneversal Expo (World Exhibition)	Belgium 	Industries	26	13
18	Esposizione internazionale dell'industria e del lavoro 29. april – 19. novembar 1911 BIE klasifikacija: Uneversal Expo (World Exhibition)	Italy 	Industry and Labor	37	7.41
19	Exhibition universelle et internationale 6. april – 31. oktobar 1913 BIE klasifikacija: Uneversal Expo (World Exhibition)	Belgium 	Cities & Town Planing Exhibition	26	9.5
20	The Panama-Pacific International Exposition (PPIE) 20. februar – 04. decembar 1915 BIE klasifikacija: Uneversal Expo (World Exhibition)	USA 	US successes: 1. Celebration of the completion of work on breaking the Panama Canal. 2. Reconstruction of San Francisco after the Great Earthquake (1906)	24	18.88
21	Exposición General d'España (section: Exposició Internacional de Barcelona de 1929) (The 1929 Barcelona International Exposition) 30. maj 1929 – 30. januar 1930 Uneversal Expo (World Exhibition)	Spain 	Industry, Arts and Sport. Reconstruction of Parc de la Ciutadella, Barcelona's main park	20 (total exhibitors: 1714)	5.8
22	A Century of Progress Exposition 27. maj – 1. novembar 1933 BIE klasifikacija: Uneversal Expo (World Exhibition)	USA 	Century of Progres	22	48.50
23	Exposition Universelle et Internationale de Bruxelles (Universal and International Exposition of Brussels, 1935) 27. april – 6. novembar 1935 BIE klasifikacija: Uneversal Expo (World Exhibition)	Belgium 	Transports. (Celebration of the 100th anniversary of the opening of the first Brussels-Mechelen railway, 1835). Colonisation. (Celebration of the 50th anniversary of the independence (1835) of the Congo Independent State)	25	20

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24	Exposition Internationale des Arts et des Techniques appliqués à la vie modrne. (International Exposition dedicated to Art and Technology in Modern Life) 25. maj – 25. novembar 1937 BIE klasifikacija: Uneversal Expo (World Exhibition)	France 	Arts and Technology in modern life	46 (total exhibitors: 11000)	31.05
25	The 1939-1940 New York World's Fair 30. april 1939 – 31. oktobar 1940 BIE klasifikacija: Uneversal Expo (World Exhibition)	USA 	The World of Tomorrow (Dawn of a New Day)	54 (total exhibitors: 1500)	44.90
26	L 'Exposition Internationale de Port au Price 1949 (The Exposition internationale du bicetenaire de Port-au-Prince) 1.decembar 1948 – 8. juni 1950 BIE klasifikacija: Uneversal Expo (World Exhibition)	Haiti 	200th anniversary of the founding of Port au Price	20	0.25
27	EXPO Brussels 1958 (Exposition Universelle et Internationale de Bruxelles) 17. april – 19. oktobar 1958 BIE klasifikacija: Uneversal Expo (World Exhibition)	Belgium 	A World view – A new Humanism	51 (total exhibitors: 4645)	41.45
28	Century 21 Exposition 21. april – 21. oktobar 1962 BIE klasifikacija: Uneversal Expo (World Exhibition)	USA 	Living in the Space Age	24	10
29	Universal and International Exhibition 1967 Montreal/Montreal Universal and International Exhibition. Expo '67. 21. april – 27. oktobar 1967 BIE klasifikacija: Uneversal Expo (World Exhibition)	Canada 	Man and his World	62 (total exhibitors: 60845)	50.31
30	EXPO Osaka 1970 15. mart – 13. septembar 1970 BIE klasifikacija: Uneversal Expo (World Exhibition)	Japan 	Progress in Human Harmony	77 (total exhibitors: 1040)	64.21
31	Expositión Universal de Sevilla 1992 20. april – 12. oktobar 1992 BIE klasifikacija: Uneversal Expo (World Exhibition)	Spain 	The ara of discoveries. Celebration of the 500th anniversary (1192-1992) of the discovery of America (Christopher Columbus, 1450-1506)	108	41.81

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32	Expo 2000 (EXPO Hannover 2000) 1.juni – 31. oktobar 2000 BIE klasifikacija: Uneversal Expo (World Exhibition)	Germany 	Humankind, Nature, Technology	173	18
33	Shanghai World Expo China 2010 30. april – 31. oktobar 2010 BIE klasifikacija: Uneversal Expo (World Exhibition)	China 	Better City, Better Life	242	73.8
34	Esposizione Universale di Milano 2015 Expo Milano 2015 maj – 31. oktobar 2015 BIE klasifikacija: Uneversal Expo (World Exhibition)	Italy 	Feeding the Planet, Energy for Life	145	22.20
35	EXPO Dubai 2020 20. oktobar 2020 – 10. april 2021 Due to COVID 19, the EXPO was held 1 October 2021 - 31 March 2022 BIE klasifikacija: Uneversal Expo (World Exhibition)	United Arab Emirates (UAE) 	Connecting Minds, Creating the Future	192	24.10

Most of the data in the table is received by: Official Site of The Bureau International des Expositions (BIE) [2,11] http://www.bie-paris.org/site/en/home/history-of-expos/itemlist/category/10-expos-en, Accessed: July 25, 2023.

4. Architecture in the context of the Great Exhibitions (EXPO)

In the literature that follows the history and theory of architecture, architecture is mainly studied from the aspect of disposition, construction and materialization 'in itself', whereby, sporadically, the 'originality' (first appearance) of certain dimensions of architectural solutions and their connection is determined (reliance, following) with solutions from previous historical epochs [4,8]. We see a complex view of architecture in architectural literature already in the first book on architecture in general, De arhitectura libri decem (English: Ten books on architecture) by the ancient Roman architect Marcus Vitruvius Pollio (80-70 BC - around 15). However, the geographical area to which the content of this book referred was relatively narrow, the area of the then known ancient world, ancient Greece and ancient Rome, mainly. The next great book on architecture, De Re Aedificatoria (English: On the Art of Building) was written (1452) by the Italian architect Leon Battista Alberti (1404-1472). Notable books on architectural theory, Entretiens sur l'architecture (English: Architecture talks), many years later (1863) and Dictionnaire raisonné de l'architecture française du XIe au XVe siècle (English: Dictionary of French Architecture from 11th to 16th Century) was published (1854-1868) by the French architect Eugène Emmanuel Viollet-le-Duc (1814-1879).

Architecture is the 'framework of life' and is always an expression of a certain time, i.e. natural and social environment. Given the great significance of the Great World Exhibitions, architecture has been given a huge task - to articulate that significance. The urban layout of the venue for the Great World Exhibitions, the design of the central building, as well as the design of the individual pavilions, has always been a leap into the future, both for society as a whole and for architecture as its 'objectification'.

4.1. The Great Exhibition, London, 1851 (May 2 – October 11, 1851)

The central building of the exhibition, the Crystal Palace (the work of Joseph Paxton), represented a novelty in terms of the realized space, its construction and materialization of the construction and borders, especially since it was supposed to represent the powerful British Empire with Queen Victoria (Alexandrina Victoria, 1819-1901) at the head. , at the world's largest gathering of innovations and goods of the widest spectrum (Figure 3). The external dimensions of the Crystal Palace building were 564 x 138 m. The Crystal Palace building itself had its direct model in the glass garden Palm House at Kew Gardens, which was built (1844-1848) in London (architects Decimus Burton and Richard Turner). The use of steel in the construction of long-span spaces has already been demonstrated at railway terminals, Temple Meads Station (designed by engineer Isambard Kingdom Brunel) in Bristol, England (1840) and Central Railroad Station (designed by John Dobson) in Newcastle-on-Tyne (1846- 1855). At the same time, the Bibliotheque Sainte Genevieve (architect Henri Labrouste) was built in Paris (1845-1851), where the iron structure is visible only in the interior, while the exterior treatment of the building remained at the level of current styles in architecture (neohistorical styles). The use of iron, as a new building material, was demonstrated much earlier on engineering structures, where representative examples are The Severn River Bridge (design engineer Thomas Farnolls Pritchard) in Coalbrookdale (1777-1779) and Clifton Suspension Bridge (design engineer Isambard Kingdom Brunel) in to Bristol (1836-1864). In the center of the

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Crystal Palace was a Fountain made of 4 tons of red glass, 27 m high. It was a place for rest, meetings and cooling off [2].

Figure 3. Crystal Palace, 1851 (Architect: Joseph Paxton)

4.2 Exposition Universelle des produits de l'Agriculture, de l'Industrie et des Beaux-Art de Paris 1855 (May 15 - November 15, 1855)

The central building of the exhibition in Paris (1855) was the Palais de l'Industrie (architect Jean-Marie-Victor Viel and engineer Alexis Barraut), a spacious three-nave hall[5], whose structure is made of iron, and the roof shell is made of glass (Figure 4). One cannot avoid comparing this construction with the Palm House at Kew Gardens in London (1844-1848), which, although smaller in size, was a model for the Palais de l'Industrie. In the design of important buildings in the world, the use of neo-historical styles still prevails (such as The Senate Square and Lutheran Cathedral by the architect Johann Carl Ludwig Engel in Helsinki, 1852). Representative buildings in the style of the Chicago School are being built in the USA, where the steel structure of the building is 'dressed' with a neo-historical mantle (such as the Harper & Brothers Building by architect James Bogardus in New York, 1854). Paddington Station, which was built (1852-1854) in London according to the project of engineer Isambard Kingdom Brunel [2], can be singled out as the highest architectural achievement of the observed time.

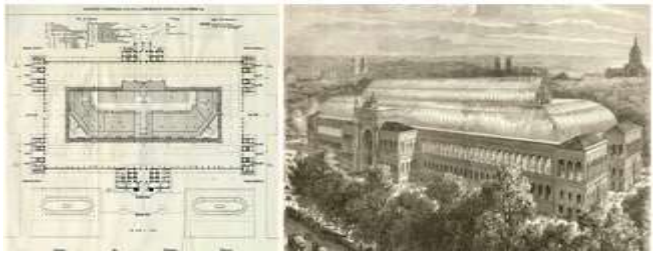

Figure 4. Palais de l'Industrie, 1855-1897 (Architects: Jean Marie Victor Viela and Alexandre Barrault)

Source: http://pw1949.blogspot.com/2014/06/les-premieres-expositions-universelles.html, Accessed: July 25, 2023.

Source: https://alchetron.com/Palais-de-l%27Industrie, Accessed: July 25, 2023.

4.3 The London International Exhibition on Industry and Art of 1862 (May 1- November 15, 1862)

It can be said that the Great Palace (architect Captain Francis Fowke), the central object of the exhibition The London International Exhibition on Industry and Art (London 1862), had its models in the buildings of the Gare du Nord in Paris and the Galleria Vittorio Emanuele in Milan, since its construction followed a year after the start of construction of these facilities. Although the external appearance of the Great Palace reflects the spirit of neo-historical styles, its iron construction and the realized

Source: https://www.archdaily.com/397949/ad-classic-the-crystal-palace-joseph-paxton/51d479f7b3fc4b9e0f00019b_ad-classic-the-crystal-palace-joseph-paxton_800px-crystal_palace_-_plan-jpg, Accessed: July 25, 2023.

Source: http://www.hberlioz.com/London/print.html, Accessed: July 25, 2023.

interior space with two metal-glass domes[6] give it a dimension of unprecedented grandiosity and technical-technological sophistication [2] (Figure 5). In the design of representative architecture, neo-historical styles prevail. The Red House, which was built (1859) in Bexleyheath, Kent, England according to the project of architects William Morris and Philip Webb, has a notable place in architectural achievements. The design of this house is based on the traditional residential construction of this region of England. Extremely valuable architectural achievements of this time are the Gare du Nord railway station in Paris built (1861-1865) according to the project of architect Jakob Ignaz Hittorf, and the Galleria Vittorio Emanuele built (1861-1877) in Milan according to the project of architect Giuseppe Mengon.

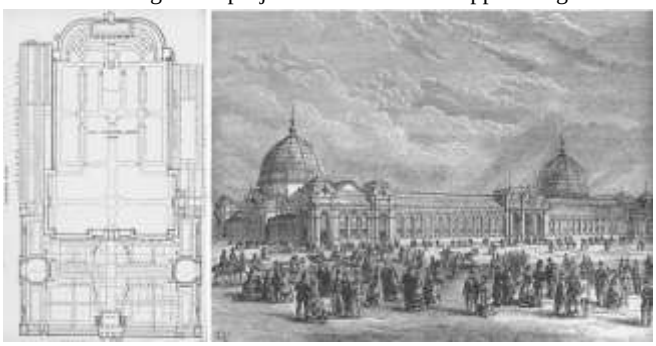

Figure 5. The Exhibition Building (Great Palace), 1862 (The building was built by Kelk and Lucas)

Source: https://collections.vam.ac.uk/item/O1042153/plan-of-the-buildings-and-photograph-department-of-science/

Accessed: July 25, 2023.

Source: https://www.alamy.com/stock-photo/1862-london-exhibition.html?sortBy=relevant, Accessed: July 25, 2023.

4.4 Exposition Universelle (d'art et d'industrie) de 1867 (April 1 – November 3, 1867)

The central building of the Exposition Universelle (d'art et d'industrie) de 1867 (Paris 1867) was the Palais du Champ de Mars (designed by engineers Pierre Guillaume Frédéric Le Play and Gustave Eiffel). The final dimensions of the Palais du Champ de Mars were 490 x 380 m. The building is a design innovation, with an oval contour base within which, in the form of concentrically arranged volumes, five naves of the hall are placed. In addition to the communications that concentrically follow the oval contour of the exhibition palace, there were also communications placed radially within the contour of the palace. In this way, the exhibition space, with the shape of its base, got the impression of movement and dynamism [2] (Figure 6). The architecture of representative public buildings in the world is done in neo-historical styles (neoclassicism, neo-renaissance...), while in the construction of

[5] The outermost dimensions of the Palais de l'Industrie building were 260 x 105 m. The central nave was 190 m long and 48 m wide, while the two side naves (which served as warehouses) were each 30 m wide.

[6] The span of the domes was 45.72 m, and their height was 79.25 m, which made them the largest in the world at the time.

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railway stations, as a relatively new architectural program, steel is used (St Pancras Station, architect William Henry Barlow) in London, 1864-1868).

Figure 6. Le hall central (Palais du Champ de Mars), 1867 (Projektanti: inženjeri Pierre Guillaume Frédéric Le Play i Gustave Eiffel)

Source: http://www.arthurchandler.com/paris-1867-exposition, Accessed: July 25, 2023.

4.5 Welt Austellung 1873 in Wien (May 1 – November 1, 1873)

The central building of the exhibition was the Rotunda, designed by Karl Freiherr von Hasenauer and designer John Scott Russell, and built by the Johann Caspar Harkort Company (Duisburg, Germany). In its time, it was the largest closed space in the world, and its domed dome (with a base diameter of 108 m and a height of 84 m) is the largest dome in the world (Figure 7). Burned down on September 13, 1937. A major shift towards the modern conception and materialization of architectural buildings in the world was made (1871) by the French architect Jules Saulnier at the Menier factory in Noisiel, France, where he used a steel skeleton construction. Although the construction of larger bridges was achieved as early as 1836-1864 with the construction of the Clifton Suspension Bridge in Bristol, England (design engineer Isambard Kingdom Brunel), the Brooklyn Bridge (design engineer John Augustus Roebling) in Brooklyn, New York (1869-1883) is a masterpiece of its time and one of the greatest architectural and engineering achievements in history. The exhibition Welt Austellung 1873 in Wien is presented with a new spatial organization in which the central place is occupied by the famous Rotunda, which is itself the center of a huge exhibition hall with an emphasized longitudinal main nave and eight transverse naves (symmetrical in relation to the Rotunda) between which there is an open space with greens. Individual pavilions were located around this central body. The individual country pavilions were built as copies of traditional houses, with the clear intention of presenting the country and its culture to which they refer with their recognizability and legibility. This trend in the design of national pavilions will be maintained, more or less, until today, especially in some countries (China, Japan, Morocco, Egypt...) [2].

Figure 7. Rotunda, 1873 (Architect: Karl Freiherr von Hasenauer. Designer John Scott Russell)

Source: http://www.firefighter.at/site/historisches/article/230.html, Accessed: July 25, 2023.

Source: https://blog.mak.at/weltausstellung-in-wien-1873/, Accessed: July 25, 2023.

4.6 Centennial Exhibition of Arts, Manufactures and Products of the Soil and Mine (May 10 – November 10, 1876)

Central building of Centennial Exposition Philadelphia 1876, Main building (architects Henry Pettit and Joseph Wilson), (Figure 8) as well as other important pavilions (Memorial Building - Art Gallery, Horticultural Hall, Agricultural Building, Women's Building...), although with construction made of steel, their design and appearance follow neoclassical styles (neobaroque, neogothic, neorenaissance...). In every way, these objects surpass the architecture that was realized in the world, in the period 1874-1876. Only the Austrian Parliament Building in Vienna (architect Baron Theophil Edvard von Hansen), built (1874-1883), can be compared with them in terms of its architectural values.

In the architectural expression of public buildings in the world, neo-historical styles are dominant. In the design of individual houses, architects rely on the design of traditional houses and make a significant shift towards modern architecture (Examples: W. Watts Sherman House (architect Henry Hobson Richardson), Newport, Rhode Island (1874-1875) and Bedford Park (architect Richard Norman Shaw), London, 1875). On the Cathedral of San Pedro de Tacna, Peru (1875), the designer Gustave Eiffel uses steel construction on the building, which in all its spatial characteristics (a church with three naves) and external design follows the traditional construction of churches in Spain. However, in the building Magasin au Bon Marche, Paris (1876), the designers L. A. Boileau and Gustave Eiffel used steel in the construction of the building, where the spatial possibilities and new architectural expressiveness came to expression both in the interior and in the exterior of the building [2].

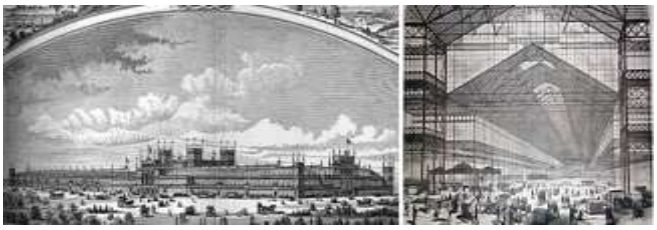

Figure 8. Main building, 1876 (Arhitekti: Henry Pettit i Joseph Wilson)

Source: https://www.archiseek.com/2010/1876-centennial-exposition-philadelphia/, Accessed: July 25, 2023.

Source: cdn11.bigcommerce.com/s-yzgoj/images/stencil/1280x1280/products/1636344/4660596/apidprkyi__13315.1626770514.jpg?c=2 Accessed: July 25, 2023.

4.7 Exposition Universelle 1878, Paris (May 1 – November 10, 1878)

The Exposition Universelle 1878 (Paris 1878) is interesting for its urban setting (designed by Léopold Amédée Hardy (1829-1894) and Jean Antoine Gabriel Davioud, 1824-1881) on the Champ de Mars and partly on the right bank of the Seine River (Palais du Trocadéro). The dimensions of the base of the Palais Champ de Mars were 700x400 m (Figure 9). The monumentality of the exhibition's urban setting as well as the architecture of the exhibition's main objects, the Palais Champ de Mars (architect Léopold Amédée Hardy and engineer Jean Baptiste Krantz) and the Palais du Trocadéro (architect Jean Antoine Gabriel Davioud), were meant to express enthusiasm for the establishment of the Third Republic of France. In addition to the distinctive architecture of the pavilions of individual countries, the Black Village (that is, a

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replica of a black village with 400 original people-natives from Africa) attracted a lot of attention. This exhibition motif will be repeated in a series of subsequent exhibitions, until the end of colonialism in the world [2]. In the observed period (1877-1878), the most notable building built in the world (1877) is the Budapest Nyugati Pályaudvar-Western railway station (engineer Gustave Eiffel). The external design of the central cell hall reflects the application of a new steel construction, while the accompanying contents are designed in a neo-historical style (neo-renaissance and neo-baroque). A valuable architectural object is the Winn Memorial Library (architect Henry Hobson Richardson), built (1876-1879) in Woburn, Massachusetts [2].

Figure 9. Palais Champ de Mars, 1878 (Architect: Léopold Amédée Hardy. Designer: Jean Baptiste Krantz). The palace has floor-to-ceiling dimensions of 700x400 m).
Source: https://blogs.princeton.edu/rarebooks/2008/06/exposition-universelle-paris-1/comment-page-1/, Accessed: July 25, 2023.
Source: https://fr.wikipedia.org/wiki/Exposition_universelle_de_1878#/media/Fichier:Panorama_des_Palais.JPG, Accessed: July 25, 2023.

4.8 The Melbourne International Exhibition 1880 (October 1, 1880 – April 30, 1881)

The great world exhibitions that took place right after each other in Sydney (September 17, 1879 - April 20, 1880) and in Melbourne (October 1, 1880 - April 30, 1881) had great significance since they marked the inclusion, until then isolated and for the whole world of the unknown space of Australia, into the worldly flows of exchange of knowledge, goods, art... As these spaces were under the administration of the British Crown, the exhibition itself was an almost literal copy of the exhibition held in London in 1862. The central building of the exhibition in Sydney, The Garden Palace (architect James Barnet, designer John Young), and the central building in Melbourne, The Royal Exhibition Building (architect Joseph Reed), are in all respects similar to the central building of the Great Palace exhibition in London in 1861 (Figure 10). On the world level, in the period (1879-1880), a major shift in architecture was achieved by the architect William Le Baron Jenney with the Leiter Building in Chicago (1879). This administrative building is made of a skeleton of wrought iron columns and a mezzanine structure made of a combination of iron and wooden beams. In the exterior of the building, the constructive construction system was reflected by highlighting the huge windows that cover the entire area framed by facade columns and mezzanine construction. With the construction of the Garabit viaduct over the Thuyere River in France (1880-1884), the engineer Gustave Eiffel achieves a huge forefather in construction, where pure empiricism reaches a high aesthetic level [2]. In America, buildings of notable architectural value were built in this period, with a visible reliance on traditional architecture: Newport Casino (architects McKim, Mead and White) in Newport, Rhode Island (1879-1880) and Thomas Crane Public Library (architect Henry Hobson Richardson) in Quincy, Massachusetts (1880-1882).

Figure 10. Royal Exhibition Buildings & Carlton Gardens, 1880 (Architect: Joseph Reed)
Source: https://www.flickr.com/photos/jaykay144/13937346511, Accessed: July 25, 2023.
Source: https://antiqueprintmaproom.com/product/the-international-exhibition-at-melbourne-austral/, Accessed: July 25, 2023.

4.9 Exposición Universal de Barcelona / Exposición Universal de Barcelona 1888 (April 8 – December 9, 1888)

The Exposición Universal de Barcelona 1888 made a great contribution to architecture and urbanism with the urban concept itself: the main exhibition objects are arranged radially, in the form of a fan, with the individual pavilions, as a flat continuation of the fan, lined up in parallel, forming a huge exhibition park with a water surface and fountains (Figures 11,12). Of the individual objects of the exhibition, the Hivernacle (Green House), which has been preserved to this day, and was built (1884) according to the project of the architect Josep Amargós and Samaranch [2], attracts a lot of attention. On the global world level, in the construction of representative architectural buildings, the aesthetics of neohistorical styles are still followed (for example, the National Library of Greece building (architect Baron Theophil Edvard von Hansen), Athens (1888)). In the USA, in the construction of residential buildings and residence, the architects rely on traditional architecture and on the Renaissance architecture of the European tradition. Representative examples are the John J. Glessner House (architect Henry Hobson Richardson), Chicago (1885-1887) and the W. G. Low House (architect McKim, Mead and White), Bristol, Rhode Island (1887). The Biltmore House (architect Richard Morris Hunt), Asheville, North Carolina (1888-1895) was built under the visible influence of the architecture of the Renaissance castle Château de Chambord, which was built (1519-1547) by the French king Francis I (1494-1547). On the other hand, the tradition of the Chicago School continued in the construction of administrative buildings with an iron structure and outer shell in neo-historical styles (such as the Auditorium Building (architect Louis H. Sullivan), Chicago, 1886-1890). In Europe, the distinctive and recognizable work of the Catalan architect Antoni Gaudi i Cornet (1852-1926) was noticed, formally at the time of the reigning Art Nouveau style. The construction of the Colegio Teresiano, which was built according to his design (1888-1890) in Barcelona, is a hint of modern architecture, where the use of traditional materials (bricks) was done with incredible meticulousness (which can only be compared to some works by Louis H. Sullivan F.L. Wright) . One of the most notable

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architectural and engineering works of this period is Tower Bridge (architect Horace Jones), London (1886-1894). One extremely utilitarian construction (the bridge) in its solution connected the past (as a neo-gothic construction), the present (the use of an iron movable bridge and iron cables) and the future (through its original use until today and in the future) [2].

Figure 11. Exposición Universal de Barcelona 1888 (Ciutadella Park). Triumphal Arch (2); Palacio de Bellas Artes (4); Palacio de Ciencias (5); Salon de Congresos (6); Palacio de Agricultura (7); Café-Restaurant (11); Hivernacle (13); Martorell Museum (14); Umbracle (15); Palacio de la Industria (22); Galería de Máquinas (29), Juan Valero de Tornos, Guide illustré de l'Exposition Universelle de Barcelona en 1888. De la ville, de ses curiosités et de ses environs. Text de Direction artistique de Juste Simon. G. de Grau et Cie. Barcelona, 1888.

Source: https://www.johost.eu/vol6_fall_2012/agusti_galan.htm, Accessed: July 26, 2023.

Figure 12. Salon de San Juan, 1888

Source: https://izi.travel/en/f5dc-salon-de-san-juan/es, Accessed: July 26, 2023.

4.10 L'exposition universelle de Paris de 1889 (May 6 – October 31, 1889)

The exhibition L'exposition universelle de Paris de 1889 is the largest exhibition held in Paris up to that time. For the first time, the exhibition was organized in several locations: Champ de Mars, Trocadéro, Qui d'Orsay, parts of the esplanade of Siena and the Invalides. One of the central objects of the exhibition, the Eiffel Tower (architect-engineer Alexandre Gustave Eiffel) will become the most recognizable sign of Paris and its symbol (Figure 13). With a height of 300.65 m, it was the tallest building in the world. Another important object of the exhibition was the Palais du Machines (architect Charles Louis Ferdinand Dutert, designer Victor Contamin). This hall was also used for the exhibition held in 1900, and then it was demolished in 1910. At that time, this building had the largest span (111 m) and volume in the world). Both of the mentioned objects demonstrated the structural-spatial and aesthetic possibilities of iron (steel) in the best possible way. Other important objects of the exhibition were made in neo-historical styles: Palais des Industries Diverses (architect Joseph Antoine Bouvard), Palais des Beaux-Arts et des Arts liberaux (architect Jean Camille Formigé), Galerie Desaix and Galerie Rapp (architect Jean Camille Formigé). The individual pavilions of individual countries that reflected their traditional architecture were noted, as in all exhibitions up to that time. A special attraction of the exhibition was a replica of an African village, Village nègre, with 400 natives. Chicago and the followers of the Chicago school of architecture have a dominant place in the architecture of the USA. The construction of administrative buildings with iron (steel) construction is improved, both by increasing the height of the buildings and by their "purity", i.e. the absence of neo-historicisms on their outer shell. Representative examples are: Tacoma Building (architects Holabird & Roche), Chicago (1889), Monadnock Building (architects Burnham & Root), Chicago (1889-1891). One of the greatest architects in history, Frank Lloyd Wright, appeared on the world stage of architecture with his own facility Home and Studio, Oak Park, Illinois (1889-1909). The great architectural achievement of this period (1889-1894) is Upper Trade Rows on Red Square (architect Vladimir Grigoryevich Shukhov) in Moscow. Although a similar solution was seen much earlier (Galleria Vittorio Emanuele (architect Giuseppe Mengoni), Milan (1861-1877), its significance for the history of architecture is great, as is the significance of the Bradbury Building (architect George H. Wyman), built (1889- 1893) in Los Angeles, California This building, both in exterior and interior, resembles the building Magasin au Bon Marche (architects L. A. Boileau and Gustave Eiffel), which was built (1876) in Paris [2].

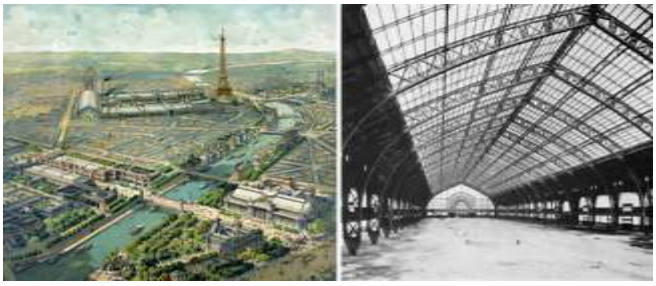

Figure 13. Left: L'exposition universelle de Paris de 1889 (Panorama). Right: Palais du Machines (Architect: Charles Louis Ferdinand Dutert, designer Victor Contamin)

Source: https://www.pariszigzag.fr/insolite/histoire-insolite-paris/sur-les-traces-de-l-exposition-universelle-1889, Accessed: July 26, 2023.

Source: https://www.pariszigzag.fr/wp-content/uploads/2017/09/Galerie-des-Machines-e1506353066606.png, Accessed: July 26, 2023.

4.11 World's Fair: Columbian Exposition 1893 (May 1, – October 30, 1893)

At the 1893 Columbian Exposition organized at Jackson Park in Chicago, an unprecedented integration of built physical structures with greenery and water was achieved (Figure 14). Individual architectural objects can be considered the most valuable architectural achievements in the period 1890-1893. In most of the buildings, steel is used in their construction, but in their external design, patterns of neo-historical styles, neo-classicism and neo-renaissance are mainly applied. Due to its position in the exhibition area, viewed from the land towards Lake Michigan as well as from the lake to the exhibition area, the object The Manufactures and Liberal Arts Building (architect George Browne Post) has the kind of monumentality that will later be seen in the USA with indoor football stadiums (Georgia Dome in Atlanta (1990-1992), for example). The area of this building was 130,000 m2, and the volume was 8.5 million m^3. Particularly valuable architectural achievements were the following buildings: Fine Arts Building (architect Charles Bowler Atwood), The Agriculturl Building

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(architect Charles Follen McKim), The Transportation Building (architects Adler & Sullivan) and The Machinery Building (architect Robert Swain Peabody). One of the greatest architectural achievements in the world, in the period 1890-1893, is the Wainwright Building (architect Louis Henry Sullivan) built (1890-1891) in St. Louis, Missouri. The building is completely free of historicism, and its design, although physically not so large, seems monumental. On the 16-story Manhattan Building (architect William Le Baron Jenney) built (1891) in Chicago, the architect applies the composition of the stepped development of the vertical plan (which will be used in the future, until today, in the design of skyscrapers). For the first time, docks are used on a tall building, which, arranged symmetrically, enliven the main facade of the building in a completely new way. The tall building Masonic Temple (architects Burnham & Root) built (1891) in Chicago, although it uses neo-historical elements in the design of the main facade, looks much more modern, as if it was built in the spirit of postmodernism in the second half of the twentieth century. In Europe at this time, the work of the Belgian architect Victor Horta, a representative representative of Jugendstil in architecture, was noted. In the Tassel House building (1892-1893) in Brussels, Horta is much freer in the disposition of the horizontal plan, and by using iron and glass he connects the art of decoration and architecture in a unique way that will make him recognizable in the history of architecture. On the William H. Winslow House, built (1893) in River Forest, Illinois, architect Frank Lloyd Wright creates a design that is in all respects appropriate for modern architecture. It presents its own way of separating the body of the roof from tial construction, which will be massively used again in the construction of various programs at the beginning of the 21st century [2].

Figure 14. World's Fair: Columbian Exposition 1893 (Bird's eye view of the exhibition area)
Source: https://www.loc.gov/resource/g4104c.pm001522/, Accessed: July 26, 2023.

4.12 Exposition Internationale de Bruxelles 1897 (May 10 – November 8, 1897)

Most of the objects of the Exposition Internationale de Bruxelles 1897 were made in the style of neoclassicism, and even the emphasized entrance porch of the central exhibition hall of the Palais Mondial, which was made in steel construction (Figure 15). A valuable architectural object of this exhibition is the Palais des Colonies (architect Albert Philippe Aldophe). Since 1898, this building has been transformed into Le musée royal de l'Afrique centrale. A particularly interesting content at a world exhibition is the Grande Mosquée de Bruxelles (architect Ernest Van Humbeek), which is still there today. The building looks more like a postmodern construction of the twentieth century, inspired by Art Nouveau architecture from the end of the nineteenth century. Unusually for the style of the architect Victor Horta, but completely in line with the content, the Pavillon des Passions humaines [2] was designed in a neoclassical style. In this period (1894-1896-1897), a number of valuable architectural achievements were built in the world. The Guaranty Building (architect Louis Henry Sullivan), built in Buffalo (1895), is almost identical to the Wainwright Building built a little earlier in St. Louis (1890-1891) according to the project of the same architect. The Marquette Building (architects Holabird & Roche), built (1895) in Chicago, is completely free of neohistorical elements and looks like a postmodernist building of the twentieth century. The same could be said for the New York Life Insurance Building (architect William Le Baron Jenney) in Chicago (1894) and the Reliance Building (architects Burnham & Root) in Chicago (1895). A notable architectural realization was achieved by the Belgian architect Henry van de Velde with the Bloemenwerf house in Brussels (1895-1896). At the Bodegas Güell building built in Sitges (1895-1897), Antonio Gaudi demonstrates a distinctive design that seems artistically refined and vernacular at the same time. A major shift towards the purity of the expression of modern architecture was achieved by the architect Victor Horta with the constructions of Hotel Solvay in Brussels (1895-1900) and Hotel van Eetvelde in Brussels (1895-1898), architect Joseph Maria Olbrich with the beam Sezession House in Vienna (1896), architect Charles Rennie Mackintosh from the Glasgow School of Art in Glasgow (1897-1909), architect C. Harrison Townsend from the Whitechapel Art Gallery in London (1897-1901) and architect Anatole de Baudot with the Saint Jean de Montmartre church in Paris built (1894) in reinforced concrete [2].

Figure 15. Palais Mondial, Brussels, 1897
Source: https://www.alamy.com/stock-photo/palais-du-cinquantenaire.html?sortBy=relevant, Accessed: July 26, 2023.
Source: http://museummenagerie.blogspot.com/2016/08/Congo-Tervuren.html, Accessed: July 26, 2023.

4.13 L'Exposition de Paris 1900 (April 14 – November 12, 1900)

The exhibition L'Exposition de Paris 1900 was organized in the same space (Champ de Mars, Trocadero, Bois de Vincennes, Esplanade des Invalides) and in more or less the same facilities where the previous exhibition in Paris, L'exposition universelle de Paris de 1889, was organized . The Grand Palais (Architects: Henri Deglane, Albert Louvet, Albert Thomas and Charles Girault) was the central object of the exhibition (Figure 16). In this period (1898-1900), a large number of valuable architectural achievements were built in the world. Although it is still being built in neo-historical styles (for example: University Club (architects McKim, Mead & White), New York, 1900), realizations freed from historicism prevail. In this sense, notable buildings are: Majolica House (architect Otto Wagner) in Vienna (1898-1899), Queen's Cross Church (architect Charles Rennie Mackintosh) in Glasgow (1898-1899), Bourse Amsterdam (architect Hendrik Petrus Berlage) in Amsterdam (1898-1903), Gage Buildings

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(architects Holabird & Roche) in Chicago (1899), Café Museum (architect Adolf Loos) in Vienna (1899), Portois & Fix Store (architect Max Fabiani) in Vienna (1899-1900).. The pavilions of individual countries are replicas or architectural compilations of indigenous architecture. At this exhibition, Bosnia and Herzegovina was presented with its pavilion for the first time (albeit under the flag of the Austro-Hungarian Monarchy) [2].

Figure 16. Le Grand Palais, 1900 (Architects: Henri Deglane, Albert Louvet, Albert Thomas and Charles Girault)
Source: https://www.triphobo.com/places/paris-france/grand-palais, Accessed: July 26, 2023.
Source: https://whichmuseum.co.uk/museum/grand-palais-paris-6673, Accessed: July 26, 2023.
Source: https://www.grandpalais.fr/en/discover-grand-palais-0, Accessed: July 26, 2023.

4.14 The Louisiana Purchase Exposition/St. Louis World's Fair (April 30 – December 1, 1904)

The central building of the exhibition was the Festival Hall (Architect: Cass Gilbert), (Figure 17). In the observed period of time (1902-1904), a large number of architectural objects of exceptional value were realized in the world with a visible deviation towards the purity of form and the absence of historicism. The Low Library (architects McKim, Mead & White) at Columbia University in New York (1903) still shows the influence of neoclassicism in the design of the emphasized entrance facade of the library. Selected examples of individual residential buildings show their climate-regional affiliation legible through design and materialization: Hvittrask (architect Eliel Saarinen) in Helsinki (1902) and Hill House (architect Charles Rennie Mackintosh) in Helensburgh, Scotland (1902-1903). On some buildings, the use of reinforced concrete and steel as basic construction materials extended its expression to the external appearance of the building: Rue Franklin Apartments (architect Auguste Perret) in Paris (1902-1904), Le Parisien Offices (architect G. P. Chedanne) in Paris (1903)), Larkin Building (architect Frank Lloyd Wright) in Buffalo, New York (1904), Villa Karma (architect Adolf Loos) in Montreux, Switzerland (1904). Unity Temple (architect Frank Lloyd Wright) in Oak Park, Illinois (1904-1908) and Post Office Savings Bank (architect Otto Wagner) in Vienna (1904-1912). The Louisiana Purchase Exposition (St. Louis 1904) heritage value of urban setting (already seen at the Columbian Exposition 1893 (Chicago 1893) and at the Pan-American Exposition, Buffalo 1901 (New York 1901) in which the unity of physical structures, greenery and water was achieved. with a visible emphasis on traditional architecture. Following the example of some earlier exhibitions where an African village was presented as an attraction, this exhibition featured a Philippine village. It should be noted that in order to achieve the monumentality of the exhibition space, two ancient Egyptian stone obelisk located in front of the Palace of Mines and Metallurgy [2].

Figure 17. The Louisiana Purchase Exposition. St. Louis World's Fair. Panorama
Source: https://library.wustl.edu/spec/1904-worlds-fair/, Accessed: July 26, 2023.

4.15 Exposition Universelle et Internationale de Liège (April 25 – November 6, 1905)

Seen as a whole, the architecture of the buildings of the Exposition Universelle et Internationale de Liège (Liège 1905) is arranged in neo-historical styles. Rare pavilions with their appearance testify to the use of new materials (iron, steel and glass): Section de l'Horiculture Belge, Pavillon de la France, Compagnie internationale des Wagons-Lits and the tower of the Internationale Bohrgesellschaft Erkelenz, for example. Notable pavilions at the exhibition were the Pavillion d' Afrique-Palais des Beaux Arts and Les Arênes Liégeoises. Although their architecture is visibly based on traditional architecture, they hint at a new relationship to tradition (bioclimatic architecture) that will be particularly relevant at the end of the twentieth and beginning of the twenty-first century (Figure 18). The central building of the exhibition was the Palais des Beaux Arts (Architects: Charles Étienne Soubre and architect Jean Laurent Hasse). Now this building is the Center International d'Art et de Culture. In the observed period (1905), several architectural buildings were realized in the world that are a reflection of their time, without trying to take over any patterns from the past. The Catalan architect Antonio Gaudi confirmed this with several buildings, and the meticulousness of every detail and the construction as a whole could rather be compared to the structure of a termite mound, for example, than to any architectural work: Artigas Gardens in La Pobla de Lillet (1905-1906) and Casa Mila in Barcelona (1905-1910). Architect Victor Horta builds according to his specific style close to clean modern. The arches on his buildings (Villa Fernand Dubois in Sosoye (1905), for example) cannot be found anywhere in history, they belong only to him, similar to the architectural elements of Antonio Gaudi. Architect Otto Wagner builds (1905-1906) the church of St. Leopold am Steinhof in Art Nouveau style, Edwin Lutyens builds (1905-1909) in Taplow, Buckinghamshire, England the Nashdom residential building as a modern building whose sophisticated white cubes are perforated by a multitude of windows that connect the interior space of the house with the rich vegetation of the park. Architect Josef Hoffmann realizes the Stoclet Palace in Brussels (1905-1911), where he achieves the ultimate unity of architecture and its rich natural environment [2].

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Figure 18. Exposition Universelle et Internationale de Liège1905. Plan

Source: https://cfchanteraines.fr/lvdc/lvdc0274/expo-liege-1905.htm, Accessed: July 26, 2023.

Source: https://postermuseum.com/products/vue-panoramique-de-lexposition-universelle-de-liege-10, Accessed: July 26, 2023.

4.16 Exposition Internationale de Milan 1906 (April 28 – October 31, 1906)

Most of the main pavilions of the Exposition Internationale de Milan 1906 (Milan 1906) were made in neo-historical styles with the application of decorations appropriate to the Rococo style (Figure 19). Some of the main pavilions, being made with a steel structure, show the opulence of a contemporary open interior space while in their external appearance they are clothed in the cloak of neo-historical styles (for example, La Galleria del Lavoro (engineers: Bianchi, Magnani and Rondoni). Some objects are also in modern in the interior and exterior (Stazione piazza d'armi), while some, although with iron construction and clear volumes in their external appearance, are decorated with facade ornaments in shallow plastic (Il padiglione di metrologia, Arte decorativa padiglione and Carrozzeria, for example). The pavilions of most countries are made as replicas of their traditional houses. Here, however, the German pavilion stands out, which is a completely modern construction whose strong entrance facade is reminiscent of the access portal of ancient Egyptian temples. The central object of the exhibition was La Galleria del Lavoro (Engineers: Bianchi, Magnani & Rondoni).On a global scale, representative buildings are still being made in neo-historical styles (for example, the Morgan Library (architects McKim, Mead & White) in New York, 1906). At this time, two residential buildings were realized that have a notable place in the history of architecture: Heathcote (architect Edwin Lutyens) in Ilkley, Yorkshire, England (1906) and Mackintosh House (architect Charles Rennie Mackintosh) in Glasgow, Scotland (1906). In both of these buildings, their authors achieved universal values of architecture that make these buildings functional and beautiful for any weather that they, being physically perfect, will surely meet [2].

Figure 19. Exposition Internationale de Milan 1906 (Panorama of the exhibition space)

Source: https://drouot.com/fr/l/21489359-stroppa-mario-exposition-internationale-de-milan-1-affiche, Accessed: July 26, 2023.

Source: https://www.invaluable.com/auction-lot/world-exhibitions-five-posters-1-exposition-inter-2526-c-c354f6abb5 Accessed: July 26, 2023.

Figure 20. La Galleria del Lavoro, 1906 (Engineers: Bianchi, Magnani & Rondoni)

Source: http://www.thehistorialist.com/2011/01/calzaturificio-borri-at-milan-expo-1906.html, Accessed: July 26, 2023.

Source: https://picclick.it/Esposizione-nazionale-di-Milano-nel-1881-Galleria-delle-394690267033.html, Accessed: July 26, 2023.

4.17 Exposition Universelle et Internationale, Brussels 1910 (April 23 – November 1, 1910)

The central building of the exhibition was Le Grand Palais (Figure 21). In this period (1910), in some parts of the world, buildings are still being built in neo-historical styles, while in other regions they are being built according to the patterns of modern architecture. Such, for example, are neoclassical buildings: Pennsylvania Station (architects McKim, Mead & White) in New York (1910) and the Temple of the Scottish Rite (architect John Russell Pope) in Washington (1910). Examples of the first buildings in the style of modern architecture in general are: Steiner House (architect Adolf Loos) in Vienna (1910) and The Fagus Factory (architect Walter Gropius) in Alfeld an der Leine, Germany (1910-1911). Engineer Robert Maillart with the Warehouse Giesshübel facility in Zurich (1910) demonstrated the constructive and architectural-aesthetic possibilities of reinforced concrete in the best way, by applying the innovative solution of the mushroom ceiling. Architect Louis Henry Sullivan by building St. Paul's Church in Cedar Rapids, Iowa (1910-1914) realizes a work whose design is more reminiscent of the postmodern architecture of the second half of the twentieth century. The Woolworth Building (architect Cass Gilbert) built in New York (1910-1913) was at that time one of the tallest buildings in the world (241.4 m), and will become a model for many later skyscraper solutions [2].

Figure 21. Left: Exposition Universelle et Internationale, Brussels 1910 (Panorama). Right: Le Grand Palais

Source: https://neonatology.net/gallery/exhibitions/exposition-universelle-et-internationale-de-bruxelles-1910/, Accessed: July 26, 2023.

Source: https://drouot.com/fr/l/15214918--exposition-universelle-bruxel, Accessed: July 26, 2023.

4.18 Esposizione internazionale dell'industria e del laboro (April 29 – November 19, 1911)

The central building of the exhibition (Figure 22) was the Padiglione delle Feste (Architects: S. Molli, P. Fenoglio and G. Salvadori). In this period (1911), several valuable architectural buildings were realized in the world, some of them as historical debuts of a certain constructive system and design. As residential constructions that fit into the natural environment in the best way,

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forming a unique whole with it, we mention: The Salutation (architect Edwin Lutyens) in Sandwich, Kent, England (1911) and Villa Tony Garnier (architect Tony Garnier) in Saint-Rambert, Lyon (1911). The German architect Hans Poelzig realized two extremely valuable projects, the Water Tower in Poznań (1911) and the Breslau Office Building in Breslau (1911-1912). In both projects, the use of reinforced concrete as a structural material resulted in completely new architecture and previously unseen aesthetic possibilities. American architect Frank Lloyd Wright with the Taliesin complex in Spring Green, Wisconsin (1911-1925) achieves the unity of found nature and built structures at the highest level and in such a way as to erase the boundaries between built and natural to the extent that architecture seems to be a natural extension of the environment in which it was realized. With the construction of the Jahrhunderthalle in Wroclaw (1911-1913), the architect Max Berg, using reinforced concrete as a structural material, created one of the most monumental buildings in history, which can be compared to the Pantheon in Rome or the Hagia Sophia in Istanbul. With a dome span of 65 m and a height of 42 m, the Jahrhunderthalle in Wroclaw was the largest building in the world at the time. As such, it (and its name) symbolized the victory of Germany and Prussia (under the leadership of the Prussian King Frederick William III) over Napoleon in the famous Battle of Leipzig in 1813. Russian architect Vladimir Grigoryevich Shukhov realized the Adziogol Lighthouse in Chersson, Ukraine (1911) with a hyperboloid construction made of steel rods, which was the first such construction in history. Despite this architectural environment, the architecture of the buildings of the Esposizione internazionale dell'industria e del lavoro (Torino 1911) was, for the most part, made in neo-historical styles. The pavilions of most countries were made like their traditional houses, some were modeled after church architecture (such as the Serbian pavilion, designed by the architect Prof. Eng. Tanaserić), while some were a great architectural breakthrough of their time. This can be said for the pavilion of Hungary (built according to the project of architects Emil Törya, Maurice Pogánya and Dénes Gyögyia) and the pavilion of Russia (built according to the project of architect Vladimir Alekseyevich Shchuko) [2].

Figure 22. Esposizione internazionale dell'industria e del lavoro, Torino 1911 (Plan of the exhibition)
Source: https://italyworldsfairs.org/xmldatapages/basic/183, Accessed: July 26, 2023.

4.19 Exhibition universelle et internationale (April 6 – October 31, 1913)

Although most of the buildings at the Exhibition universelle et internationale (Ghent 1913) were designed in neo-historical styles, two pavilions that can be counted among the highest ranges of architecture of their time and as threatening architecture that will be seen in the future should be highlighted (Figure 23). It is about the pavilion of Germany and about Le Village Sénégalais. While the German pavilion reflects the very peak of avant-garde modern art, the architecture of Le Village Sénégalais foreshadows the official architecture based on the principles of bioclimatic architecture, which will be practiced much later by the famous Egyptian architect Hassan Fathy (1900-1989). The central object of the exhibition was La Salle des Fêtes (The Hall for Celebration). In the architecture of the observed period (1913), it is still built according to the patterns of neo-historical styles, according to the patterns of traditional architecture, but also according to the patterns of pure modern. Notable buildings of that time made in neohistorical styles include: McMinnville Public Library (architect Ernst Kroner) in McMinnville, Oregon (1912), American Academy in Rome (architects McKim, Mead & White) in Rome (1913) and Multnomah County Public Library (architect A.E. Doyle) in Portland, Oregon (1913). Among the residential buildings built in the observed period, which inherit the values of traditional architecture, we mention: Chick House (architect Bernard Maybeck) in Berkeley, California (1913) and Villa Sturegården (architect Erik Gunnar Asplund) in Nyköping (1913). As buildings that were made as the avant-garde of their time, we mention: Théâtre des Champs-Élysées (architect Auguste Perret) in Paris (1913) and "Werkbund-Theater", Theater at the Deutsche Werkbund exhibition in Cologne (architect Henri van de Velde) in Cologne (1913-1914). The building Goetheanum I (Rudolf Steiner) in Dornach (1913-1920) has a special place in the time of its construction and in the history of architecture [2].

Figure 23. Exhibition universelle et internationale, Ghent 1913
Source: https://lib.ugent.be/viewer/archive.ugent.be:15B02AE2-3588-11E1-94ED-C5763B7C8C91#?c=&m=&s=&cv=&xywh=-2358%2C-198%2C8455%2C4395, Accessed: July 26, 2023.
Source: https://gent1913.eu/, Accessed: July 26, 2023.

4.20 The Panama-Pacific International Exposition, PPIE (February 20 – December 4, 1915)

Taken as a whole, most of the buildings of The Panama-Pacific International Exposition (PPIE), (San Francisco 1915) were done in neo-historical styles, including the main vertical of the exhibition, The Tower of Jewels (Figure 24). Some objects of the exhibition are free of neo-historical features in their appearance (The Palace of Machinery), while in some they appear modestly (Palace of Food Production). And while the pavilions of most countries are presented as replicas of their traditional buildings, the pavilions of some private companies use advertising elements that, suggesting the content of the pavilions, hint at postmodern architecture (Pavilion of a company for products made of ostrich meat and feathers). The central objects of the exhibition were the Tower of Jewels (Architect: Thomas Hastings) and the Palace of Fine Arts (Architect: Bernard Ralph Maybeck). In the wide program of buildings realized in the world in the period (1914-1915), we still meet architecture based on the patterns of neo-historical styles, but also architecture that relates to traditional architecture and avant-garde architecture of its time in a professional-responsible and artistically-creative manner. In the exterior design of the Albany Public Library (architect Charles Burggraf) in Albany, Oregon (1914), the influence of neo-historical styles is felt. The Mercer Museum (architect Henry

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Mercer) in Doylestown, Pennsylvania (1914) has in its appearance something of the aesthetics of the Renaissance castles on the Loir River in France, and something of the medieval castles-forts throughout Europe. With its monochromaticity, it has a monumental effect, which achieved some of the attributes of architecture that belongs to all times. Some architectural realizations are typical representatives of avant-garde architecture of their time: Holland House (architect Hendrik Petrus Berlage) in Bury Street, London (1914), Stade de Gerland municipal stadium (architect Tony Garnier) in Lyon (1914-1918), Sugar mill (architect Adolf Loos) in Hrušovany, Brno (1915) and Villa Henny (architect Robert van't Hoff) in Huis ter Heide, Utrecht (1915-1919). The building Der Glashaus-Pavillon (architect Bruno Julius Florian Taut) built for the Kölner Werkbundausstellung (1914) is the most sophisticated construction of its time and the biggest step forward in architecture into the future. The Panama-Pacific International Exposition, PPIE (San Francisco 1915) inherits the best experiences and values of previous major world exhibitions held on US soil: contact of the exhibition area with natural water, introduction of water (artificial lakes-lagoons, fountains...) in artificial exhibition space, functional internal layout, attractions [2]...

Figure 24. The Panama-Pacific International Exposition (PPIE), San Francisco 1915. Panorama
Source: http://www.expo-museum.org/en_US/info/bieAndExpos/details/000000004c9b77ee014cb6dbcd080088.shtml
Accessed: July 26, 2023.

4.21 Exposición General d'España (section: Exposición Internacional de Barcelona de 1929). The 1929 Barcelona International Exposition (May 30, 1929 – January 30, 1930)

And at the Exposición General d'España (section: Exposició Internacional de Barcelona de 1929) many of the main pavilions were made in neohistorical styles, while most of the pavilions of individual countries were made according to the patterns of modern architecture (Figure 25). The architect Mies van der Rohe achieved the greatest architectural reach at this exhibition with the realization of his two projects, Alemanya d'Indústries Elèctriques d'exposicions and Pavelló d'Alemanya. In addition, Pavelló d'Alemanya (Pavilion of Germany) is considered one of the greatest architectural achievements in the history of architecture in general. Although built according to the patterns of modern architecture, this pavilion reached the classical values of architecture that belong to all epochs. Guided by his maxim "less is more", Mies van der Rohe later realized a number of superb architectural realizations, some of which are classified as historical achievements of architecture. However, the German Pavilion in Barcelona remained the work whose beauty cannot be replicated in a similar way (all attempts become only its copies), whose concept stepped far into the future, but still remained realistic. The central object of the exhibition was the Palau Nacional (Architects: Eugenio Pedro Cendoya Oscoz and Enric Catà and Catà). The Exposición General d'España (section: Exposición Internacional de Barcelona de 1929) was far ahead of the Exposición General d'España (Seville 1929-1930) with its urban setting, and especially the architecture of individual pavilions. This is understandable since the exhibition in Barcelona, according to the BIE classification, was „Universal Expo“, while the exhibition in Seville was not recognized by the BIE [2].

Figure 25. Left: Exposición General d'España (section: Exposición Internacional de Barcelona de 1929). Bird view. Right: Pavelló d'Alemanya (Architect: Mies van der Rohe)
Source: http://labarcelonadeantes.com/expo-1929.html, Accessed: July 26, 2023.
Source: https://www.flickr.com/photos/pauljw/5255085015, Accessed: July 26, 2023.

4.22 A Century of Progress Exposition (May 27 – November 1, 1933)

A Century of Progress Exposition (Chicago 1933) inherits all the high values achieved at previous major world exhibitions in the USA, and above all, the sense of fitting the exhibition space into a natural environment where land and water complement each other (Figure 26). Apart from a series of technical innovations presented in Table 2.30.2, most of the architectural objects at the A Century of Progress Exposition (Chicago 1933) with their architecture surpass architectural realizations in the world in the considered time (1931-1933). In the environment of modern architecture, some pavilions modeled on indigenous traditional architecture (such as the Belgian Village, for example) seem refreshing. A special place at this exhibition was the construction of Sky-Ride (engineers Holton Robinson and David Bernard Steinman), a gondola, a 'sky rider') from which the views of the exhibition space meant an unrepeatable experience. This element of the exhibition will later be repeated at major world exhibitions, especially in the USA. The central object of the exhibition was the Hall of States and Federal Building (Architects: Bennet, Burnham & Holabird). Sky-Ride (Engineers: Holton Robinson and David Bernard Steinman. Consultants: Joshua D'Esposito and I.F. Stern). In the considered period (1931-1933), a large number of architectural buildings were realized in the world, in a wide variety of architectural contents, which were included in the list of the most successful solutions in history. Among the residential buildings, the following stand out: Casa del Fascio (architect Giuseppe Terragni) in Como (1932-1936), Schminke House (architect Hans Scharoun) in Lobau (1933), Housing complexes Parisian (architect Marcel Gabriel Lods) near Drancy (1933) -1934), and Sonneveld House (architect Leendert Cornelius van der Vlugt) in Rotterdam (1933-1934). Of the public buildings, the following stand out: Helsingborg Concert Hall (architect Sven Markelius) in Helsingborg (1932-1934), Empire Pool (architect Owen Williams) in Wembley, (1933-1934) and the Library of Ghent University with "Boekentoren" (architect Henri van de Velde) in Ghent (1933-1938). The realization of two skyscrapers, the Empire State Building (architects Shreve, Lamb & Harmon) in New York (1931) and the Rockefeller Center (architect Raymond Hood) in New

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York (1932-1940) have a special place in the history of architecture [2].

Figure 26. A Century of Progress Exposition, Chicago 1933. Aerial view
Source: https://modernworldfairs.weebly.com/a-century-of-progress.html, Accessed: July 26, 2023.

4.23 Exposition Universelle et Internationale de Bruxelles/Universal and International Exposition of Brussels, 1935 (April 27 – November 6, 1935)

The central building of the exhibition was the Palas des Expositions-Grand Palais (Architects: Victor Bourgeois and Joseph Van Neck (Figures 27, 28). In the observed period (1934-1935), several architectural buildings of high architectural value were realized in the world, and some of them have occupied a significant place in the history of architecture). From the realization of residential buildings, the following stand out: Fallingwater (architect Frank Lloyd Wright) in Ohiopyle, (Bear Run), Pennsylvania (1934, 1938, 1948), Weizmann House (architect Erich Mendelsohn) in the Weizmann Institute campus, Rehovot near Tel Aviv (1935-1936), Ambassade de France à Ottawa (architect Eugène Élie Beaudoin) in Ottawa (1935-1936) and Vester Søhus' housing (architect Kay Fisker with C. F. Møller) in Copenhagen (1935-1939). Of the public buildings, the Bellevue Theater and restaurant (architect Arne Emil Jacobsen) in Klampenborg (1935-1936), the Swedish Theater (architect Eero Saarinen) in Helsinki (1935-1936) and the Daily Express Building (architect Owen Williams) in Manchester stand out. (1935-1939). Due to the innovative application of reinforced concrete in architecture, the buildings of the architect Eduardo Torroja y Mireta, realized in the observed time in Madrid, have historical importance: The roof of hippodrome "Zarzuela" (1935) and Fronton Recoletos (1935). Although all the pavilions at the exhibition are made in a modern architectural style, the influence of neo-historical manners is noticeable on the pavilions of many countries (highlighting of the main facades with columns that follow the entire height of the building). Such are the pavilions of England, Germany, the Netherlands, Romania and the Pavilion of the city of Paris [2].

Figure 27. Exposition Universelle et Internationale de Bruxelles, Brussels 1935. Panorama
Source:https://maisons-champagne.com/fr/encyclopedies/expositions-universelles/article/1935-exposition-universelle-et-internationale-de, Accessed: July 26, 2023.

Figure 28. Exposition Universelle et Internationale de Bruxelles, Brussels 1935 (Central Hall, Palais des Expositions)
Source: http://leblogdecallisto.blogspot.com/2016/02/bruxelles-expo-1935.html, Accessed: July 26, 2023.

4.24 Exposition Internationale des Arts et des Techniques appliqués à la vie modrne/International Exposition dedicated to Art and Technology in Modern Life (May 25 – November 25, 1937)

The Exposition Internationale des Arts et des Techniques appliqués à la vie modrne (Paris 1937) was organized on the premises of previous exhibitions organized in Paris, partly in the same buildings (Figures 29, 30). The new pavoljino, however, were made according to the patterns of modern architecture, some of them in a way that in the second half of the twentieth century could be labeled as postmodern. This, above all, can be said for the pavilions of Iraq, Germany, the USSR and the Aluminum pavilion and the Musées d'Art Moderne (architects Dondel, Aubert, Viart and Dastuge). A few pavilions that, relying on the design of traditional architecture, hinted at 'architectural design according to the principles of bioclimatic architecture' should be singled out in particular: Pavillon de Afrique equatoriale (architects Jacques Georges Lambert, Pécaud and Hoyez), Pavillon de Tunisie (architect Valensi) and Pavillon d 'Israël (architect Tamir and Grinshpon). The central object of the exhibition was the Palais de Chaillot (Architects: Léon Azéma, Jacques Carlu, Louis Hippolyte Boileau). In the considered period (1936-1937), several mansions were built in the world that are included in the history of architecture: Wingspread (architect Frank Lloyd Wright) in Wind Point, Wisconsin (1937), Hanna-Honeycomb House (architect Frank Lloyd Wright) in Palo Alto , California (1937), The Gropius House (architect Walter Gropius) in Lincoln, Massachusetts (1937), Villa Myrdal (architect Sven Markelius) in Vällingby (1937), Hagerty House (architect Marcel Brauer) in Cohasset, Massachusetts (1937-1938)) and Villa Mairea (architect Alvar Aalto), Noormarkku (1937-1939). The versatile American engineer Richard Buckminster Fuller patents the Prefabricated compact bathroom cell (1937) and thereby announces his future patents and architectural realizations of historical value. In London, the Dollis Hill Synagogue (1936-1938) with a recognizable identity was realized according to the project of the architect Owen Williams, and in Rio de Janeiro, the architect Affonso Eduardo Reidy with a group of architects (Lucio Costa, Oscar Niemeyer, Jorge Moreira, Ernani Vasconcelos and Carlos Leao and a consultant Le Corbusier) realized (1936) the building of the Ministry of Education and Health, one of the most famous buildings of modern architecture [2].

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Figure 29. Exposition Internationale des Arts et des Techniques appliqués à la vie modrne, Paris 1937. Situation
Source: https://www.parismuseescollections.paris.fr/fr/petit-palais/oeuvres/plan-commode-de-l-exposition-universelle-de-paris-de-1900
Accessed: July 26, 2023.

Figure 30. Exposition Internationale des Arts et des Techniques appliqués à la vie modrne, Paris 1937 (Fontaine du Trocadero-Tour Eiffel (a) and Le Palais de Chaillot (b). Architects: Léon Azéma, Jacques Carlu, Louis Hippolyte Boileau)
Source: https://www.histoires-de-paris.fr/exposition-internationale-1937/, Accessed: July 26, 2023.
Source:https://www.researchgate.net/figure/Exposition-Internationale-des-Arts-et-des-Techniques-dans-la-Vie-Moderne-de-Paris-1937_fig3_340507623, Accessed: July 26, 2023.

4.25 The 1939-1940 New York World's Fair (April 30, 1939 – October 31, 1940)

The main theme of the exhibition was The World of Tomorrow, and its slogan was Dawn of a New Day. After US President Franklin Delano Roosevelt (1882-1945) gave a promotional speech, the great scientist Albert Einstein (1879-1955) gave a lecture on cosmic rays, and the lecture was televised. This exhibition foreshadowed the time to come with its architecture, and the Ford Company Pavilion with "The Road of Tomorrow", Consolidated Edison's fountains, Perisphere, Hall of Electrical Living Westinghouse Building with the Moto-Man robot, Electrical Utilities Building and the pavilion were expressed by their design of the General Motors company, where models of the city of the future, Futurama, were presented. The central object of the exhibition was the Theme Center, Court of Peace: Trylon and Perisphere (Figure 31). In the period (1938-1940), a large number of architectural buildings were realized in the world, which entered the history of world architecture. From residential buildings, we highlight: J. Ford House (architect Marcel Breuer) in Lincoln, Massachusetts (1939), Rosenbaum House (architect Frank Lloyd Wright) in Florence, Alabama (1939), Williamsburg Houses (architect William Edmond Lescaze) in Brooklyn, New York (1938) and Chamberlain Cottage (architect Marcel Brauer) in Wayland, Massachusetts (1940). Among the realized public buildings, the Museum of Modern Art (architects Philip S. Goodwin & Edward D. Stone) in New York (1938-1939) stands out, and among sacred buildings: Pfeiffer Chapel (architect Frank Lloyd Wright) in Lakeland, Florida (1938)), First Christian Church (architect Eliel Saarinen) in Columbus, Indiana (1940) and Community Christian Church (architect Frank Lloyd Wright) in Kansas City, Missouri (1940-1942). Richard Buckminster Fuller continues with innovative projects by presenting to the public his new patent, Dymaxion deployment unit, 1940). Similar to all previous large world exhibitions held in the USA, The 1939-1940 New York World's Fair (New York 1939-1940) was organized in a location that provided extraordinary opportunities for permeation of land and water, both natural water (Fountain Lake) and and artificially arranged (Lagoon of Nations) [2].

Figure 31. Left: The 1939-1940 New York World's Fair. Panorama. Right: Theme Center, Court of Peace
Source: https://www.karenfurst.com/blog/new-york-world-fair-1939-1940/, Accessed: July 26, 2023.
Source: https://newsinteractive.post-gazette.com/thedigs/2014/10/15/pittsburgh-at-the-new-york-worlds-fair/#jp-carousel-166
Accessed: July 26, 2023.

4.26 L'Exposition Internationale de Port au Prince 1949/The Exposition internationale du bicetenaire de Port-au-Prince (December 1, 1948 – June 8, 1950)

L'Exposition Internationale de Port au Price 1949 (Port au Price 1949-1950) is the first major world exhibition (Universal Expo) that was held after the Second World War (Figure 32). It was held in Port au Price, the capital of Haiti, and in honor of the 200th anniversary of its founding. The main focus of the exhibition was on presenting to the world the complex culture of the country of Haiti, as well as the culture of Central America as a whole. Some of the objects in the exhibition were even made in neo-historical styles, and most of them were modest architectural achievements. However, we should single out one modest building, the Un Arch, a symbol of the exhibition that we will see a few years later in the lavish version of the Gateway Arch in Saint Loius, built (1966) according to the project of the architect Eera Saarinen. The central object of the exhibition was the Grand Palais du Presiden receptions officiales. In the period (1941-1949), a large number of architectural buildings of various purposes were built around the world. Among the residential buildings, Kaufmann Desert House (architect Richard Neutra) in Palm Springs, California (1946) and Lake Shore Drive Apartments (architect Ludwig Mies van der Rohe) in Chicago, Illinois (1948-1951) stand out. Among the wide array of public buildings, we single out The City Hall (architect Auguste Perret) in Le Havre (1949-1951) and the Solomon R. Guggenheim Museum (architect Frank Lloyd Wright) in Manhattan, New York (1943-1959), which will achieve a strong influence on all subsequent Guggenheim Foundation museum projects. A large number of school buildings of various levels of education have been built around the world, among which the following stand out: Smithdon High School (architects Alison Smithson & Peter Smithson) in Hunstanton, Norfolk (1949-1954), Harvard Graduate Center (architect Walter Gropius) in Cambridge, Massachusetts (1949-1950), University of Ibadan (architect Edwin Maxwell Fry) in Ibadan, Nigeria (1949-1960) and Helsinki

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University of Technology (architect Alvar Aalto) in Espoo (1949-1966) [2].

Figure 32. L 'Exposition Internationale de Port au Price 1949. Situation

Source: http://islandluminous.fiu.edu/french/part09-slide18.html, Accessed: July 27, 2023.

4.27 EXPO Brussels 1958/Exposition Universelle and Internationale de Bruxelles (April 17 – October 19, 1958)

Already the title of the main theme of EXPO Brussels 1958 (Brussels 1958), A World view – A new Humanism and More Human World hints at the turning of man to himself, to another man, that is, to society, after the race for the material goods of the modern world has distanced him from the true values of man (Figure 33). Although the objects presented at the exhibition demonstrated great achievements in innovative construction, materialization and shaping of architectural space, the title of the main theme of the exhibition hinted at the saturation of modern aesthetics in all forms of artistic expression, including in architecture. The central building of the exhibition, L'Atomium (which represents a model of the iron atom) was designed by the engineer André Waterkeyn. With its construction, realized spatial relations, man's place in it and its materialization, this building was ahead of its time, it will become a symbol of human creativity and an incentive for new endeavors in architecture. Many other pavilions at the exhibition could have received similar epithets: Philips (architects Iannis Xenakis and Le Corbusier), USA (architect Edward Durell Stone), USSR (architects Y. Abramov, A. Boretski, V. Doubov and A . Polanski), Brazil (architect S. Bernardes), Great Britain (architect James Gardner), IBM (architects E. Noyes and A. et J. Polak)... The central object of the exhibition was the Palas des Expositions-Grand Palais (Architects : Victor Bourgeois and Joseph Van Neck). Among the wide variety of architectural buildings realized in the period (1950-1958) in the world, public and sports facilities deserve special attention due to the application of new concepts of organization, construction and materialization. Here, as significant architectural achievements, we can single out: City Hall (architect Viljo Revell) in Toronto (1958-1963), Wolfsburg Cultural Center (architect Alvar Aalto) in Wolfsburg (1958-1962), Town Center (architect Alvar Aalto), Seinäjoki (1958-1987), Dulles Airport (architect Eero Saarinen) in Chantilly, Virginia (1958-1962) and Palazzetto dello sport (architect-engineer Pier Luigi Nervi) in Rome (1958). With the construction of the SAS Royal Hotel in Copenhagen (1958-1960), architect Arne Emil Jacobsen) achieved one of the most harmonious architectural compositions of modern architecture, and architect Egon Eiermann with the construction of The West German Embassy in Washington (1958-1964) hinted at the high-tech architecture of the 20 .and the beginning of the 21st century. With the construction of the Church of the Sacred Heart in Bergisch Gladbach (1958), the architect Gottfried Böhm created an architecture of pure volumes, the simplicity of which contributes to the impression of the monumentality of the building, despite its modest physical dimensions. A place in the history of world architecture was secured by architect Geoffrey Bawa from Sri Lanka with the realization of his own house, Bawa House in Sri Lanka (1958-1968). The design of this house is both modern and universal at the same time, as it relies on the values of traditional Sri Lankan architecture [2].

Figure 33. Left: EXPO Brussel 1958. Panorama of the exhibition space. Right: L'Atomium (designed by engineer André Waterkeyn)

Source: https://www.galerie123.com/en/original-vintage-poster/45288/plan-panoramique-expo-58/, Accessed: July 27, 2023.

Source: https://atomium.be/expo58, Accessed: July 27, 2023.

4.28 Century 21 Exposition (April 21 – October 21, 1962)

The main theme of the Century 21 Exposition (Seattle 1962) was Living in the Space Age and it was confirmed and demonstrated both through the exhibits (the Friendship 7 satellite) and the architecture (the Space Needle), the central vertical-parameter of the exhibition space, designed by architects John Graham & Associates (Figure 34). The visible intention of making strides into the future is expressed in the design and content of the pavilions Transport 21 (architects Mandeville & Berge) and Bubbleator, as well as the constructions Alweg Monorail and The Skyride. The central object of the exhibition was the Washington State Coloseum (Architect: Paul Thiry). Now it's Key Arena. Already at the beginning of the second half of the 20th century, there were visible signs of saturation with modern aesthetics as a demonstration of the possibilities of new building materials and the expression of the creativity of architects without reference to tradition. As architecture throughout its entire history was tied to, and therefore identifiable, certain natural environments and cultural traditions, ideas began to emerge that some historical solutions and building elements could be 'cited' in architectural realizations, and that in a completely free way, without consistency of accuracy according to the original. One of the first authors who reached for such patterns of architectural creation, and who explained the inevitability of such a movement in architecture with his written works, was the American architect Robert Venturi. The Vanna Venturi House is a house that was built according to his design in Chestnut Hill, Philadelphia (1962) and became one of the first examples of postmodern architecture. With the Ōita Prefectural Library in Ōita (1962-1966), the Japanese architect Arata Isozaki demonstrated construction and aesthetics in a way that is considered brutalism in the history and theory of architecture. Architect Louis I. Kahn worked similarly on the National Assembly building (1962-1974) in the city of Dacca (Bangladesh). The highlighting of the reinforced concrete construction in a slightly more gentle way was demonstrated by the architect James Stirling at the Engineering Building of Leicester University (1959) in Leicester. Very notable buildings realized in the period (1959-1962) are the Albright-Knox Art Gallery addition (architect Gordon Bunshaft) in Buffalo, New York (1962) and Finlandia Hall

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(architect Alvar Aalto) in Helsinki (1962-1971). The American-Finnish architect Eero Saarinen realizes in Saint Louis, Missouri (1961-1966) the stunning Gateway Arch structure, which is, in fact, an observation deck for sightseeing in Saint Louis, and today its most famous symbol. The Finnish architect Reima Pietila realized his project Suvikumpu residential area in Tapiola Espoo (1962-1982), in the way of symbiosis of nature and built physical structures. A realization that deserves special attention is the Yaama Mosque (architect Falke Barmou) in Tahoua, Niger (1962-1982) due to its reliance on traditional architecture, both in the design of the space and in the construction techniques and applied material [2].

Figure 34. Left: Century 21 Exposition, Seattle 1962. Aerial view of the exhibition grounds. Right: Washington State Coloseum (Architect: Paul Thiry)
Source:
https://www.flickr.com/photos/hollywoodplace/3050817846,
Accessed: July 27, 2023.
Source:
http://www.seattletotems.org/the_arena_and_the_coliseum.html,
Accessed: July 27, 2023.

4.29 Universal and International Exhibition 1967 Montreal/Montreal Universal and International Exhibition. Expo '67. (April 21 - October 27, 1967)

The most notable pavilions of the exhibition were: Place des Nations (Architect: André Lucien Blouin), L'homme à l'Oeuvre (Architects: Affleck, Desbarats, Dimakopoulos, Lebensold & Sise), Etats-Unis d'Amérique (Architects: Richard Buckminster Fuller & Studio, Inc. Geometric Inc. Cambridge Seven Associates Inc.), République Fédérale d'Allemagne (Architect: André Bloum Rolf Gutbrod and Engineer Frei Otto), Communautés Européennes (Architects: Crivelli, Serafini-Pozzi, Bowenter), URSS (Architect : Mihail Vasilecich Posokhin), Canada (Architects: Ashworth, Robbie, Vaghan & Willains. Scheler & Barkham. A. Mathew Stankiewicz), Grande-Bretagne (Architects: Sir Basil Spence, O. M., Bonington & Collins), France (Architects: Jean Faugeron, André De Mot and André Blouin), Pays-Bus, Netherlands (Architects: Eykelenboom & Middelhoek), Italy (Architects: MM. C. Argan, G. Franci, V., F. & L Passarelli, B. Zevi) , Japan (Architects: Dr J. A. A. Yoshinobu Ashihara), Iran (Architects: A. A. Farmanfarmaelan, P. Moayed-Ahd), Austria (Architect: Dr Karl Schwanzer), Israel (Architects: A. Sharon, D. Reznik & E. Sharon) , Thailand (Architect: Chamlong Yordying), Switzerland (Architect: Werner Gantenbein), Ontario (Architects: Fairfield & Dubiois), (Figure 35). In the wide array of notable architectural architectural buildings realized in the period (1966-1967), a special place is occupied by the Ford Foundation Building (architects Kevin Roche & John Dinkeloo) in New York (1967). The introduction of a huge glazed garden into the contour of the building is an 'invention in architecture' that will only later (at the end of the 20th and the beginning of the 21st century) show its many benefits, building on the initial psycho-aesthetic requirements of the architectural expression. The same could be said for the visionary project Hedmark Museum (architect Sverre Fehn) in Hamar, Norway (1967-1979) where the architect realized the concept of 'house within a house' which realizes enormous benefits in terms of energy saving and the use of renewable energy sources, which will to be the main challenge for the architecture of the 21st century. Humphrey Spender's House (architects Richard George Rogers, with John Young and Laurie Abbott) in Maldon (1967-1968) demonstrates a contemporary realization of the concept of a house in the green of a park following the concept of the Farnsworth House (architect Mies van der Rohe) in Plano, Illinois (1945) -1951) and the Glass House (architect Philip Johnson) in New Canaan, Connecticut (1949). The Kukui Gardens housing facility (architect César Pelli) in Honolulu, Hawaii (1967) is an example of the subtle design of collective housing in symbiosis with nature and the definition of Genius Loci. Feigen Gallery (architect Hans Hollein) in New York (1967-1969) and M&T Bank Center (architect Minoru Yamasaki) in Buffalo, New York (1967). Olivetti-Underwood Factory (architect Louis Isadore Kahn) in Harrisburg, Pennsylvania (1966), Kreeger Museum (architect Philip Johnson, in collaboration with Richard Foster) in Washington, D.C. (1967) and the Exeter Library (architect Louis Isadore Kahn) in Exeter, New Hampshire (1967-1972) are examples of effective and aesthetically successful introduction of natural light into the interior of an architectural space of different purposes. At the Universal and International Exhibition 1967 Montreal (Montreal 1967) a large number of innovative architectural solutions of the pavilion were presented, some of which were far ahead of what was being built in the world at that time. Such facilities are: USA Pavilion (architect-engineer R.B. Fuller), West Germany Pavilion (architects Frei Paul Otto and Rolf Gutbrod, engineers Leonhardt and Andrä), Netherlands Pavilion, European Union Pavilion (architects Crivelli, Serafini-Pozzi, Bowenter) and the Pavilion of France. All the mentioned constructions will have a strong influence on architecture in the world in the years that will follow, until today [2].

Figure 35. Left: Universal and International Exhibition 1967 Montreal. Bird view. Right: United States of America Pavilion and view of the minirail at Expo 67 (designer: Richard Buckminster Fuller)
Source:
https://ville.montreal.qc.ca/memoiresdesmontrealais/memoires-dexpo-67, Accessed: July 27, 2023.
Source: https://www.thecanadianencyclopedia.ca/en/article/expo-67, Accessed: July 27, 2023.

4.30 EXPO Osaka 1970 (March 15 – September 13, 1970)

The invitation to the unity of people and civilizations that HemisFair '68 (San Antonio 1968) sent to the space of all the Americas with its main theme, EXPO Osaka 1970 (Osaka 1970) extended to the whole world with its main theme: Progress in Human Harmony. In addition, the accompanying themes hinted at a new relationship of humanity as a whole towards the natural environment, in which architecture will play one of the main roles:

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Towards greater joy in life, For better use of Nature, For better organization of life, For better understanding. At EXPO Osaka 1970, pavilions were presented in a wide variety of concepts, from those that demonstrated the skill of constructing and mastering space on a large scale, those that demonstrated the skill of architects in the design and architectural composition of masses, to completely innovative solutions in the conceptualization and materialization of architectural space (Figure 36). Of the pavilions that represented progress in the conceptualization and materialization of architectural space, we mention: USA-A pavilion (architects Davis, Brody, Chermayeff, Geismar, De Harak and engineer David Geiger), Fuji Group Pavilion (architect Murata Yutaka and engineer Mamoru Kawaguchi), pavilion Switzerland, Canada Pavilion (architect Arthur Erickson), Toshiba IHI joint Pavilion, Japan's Telecommunication Pavilion, Expo '70 Association Pavilion, Textiles Pavilion, Spherical Concert Hall (concept: Karlheinz Stockhausen). The solutions of these pavilions will become a model for many later architectural realizations and an incentive to improve concrete solutions according to their concepts. Central object of the exhibition: Festival Plaza (Architect: Kenzo Tange). In the observed period (1969-1970), a large number of valuable architectural achievements were realized in the world, some of which are part of the history of architecture: Mexico City metro stations San Lázaro and Candelaria (architect Félix Candela Outeriño) in Mexico (1969), Yale Center for British Art (architect Louis I. Kahn) in New Haven, Connecticut (1969-1974), Design Research Headquarters (architect Benjamin Thompson) in Cambridge, Massachusetts (1970), Nakagin Capsule Tower (architect Kisho Kurokawa) in Tokyo (1970-1972), Louisiana Superdome (architects Curtis & Davis & Associated Architects) in New Orleans, Louisiana (1970-1975), World Trade Center (architect Minoru Yamasaki) in New York (1970-1977), London Central Mosque (architect Frederick Gibberd) in London (1970-1977), Töölö Library (architect Aarne Adrian Ervi) in Helsinki (1970), Kanchanjunga Apts (architect Charles Correa) in Bombay (1970-1983) [2]....

Figure 36. Left: EXPO Osaka 1970. Aerial view of the exhibition area. Right: The Festival Plaza (Architect: Kenzo Tange)

Source: https://osaka.my.id/33-osaka-1970-expo-and-why-you-will-too/, Accessed: July 27, 2023.

Source: https://storymaps.arcgis.com/stories/124619e6e4604b3ab39750b7d4429f52, Accessed: July 27, 2023.

4.31 Exposition Universal de Sevilla 1992 (April 20 – October 12, 1992)

The main theme of the exhibition Expositión Universal de Sevilla 1992 (Sevilla 1992) was The era of discoveries, and it was organized as a celebration of the 500th anniversary (1192-1992) of the discovery of America (Christopher Columbus, 1450-1506). This exhibition (as well as the exhibition Christopher Columbus, The Ship and the Sea (Genoa 1992) which was held in the same year) had as its main goal to confirm the importance of communication between people, peoples and cultures. The exhibition presented pavilions in a wide variety of architectural conceptualizations, from postmodernism, through High-Tech solutions to the announcement of low-energy buildings (such as the pavilions of Austria, Luxembourg, Belgium, Canada, Japan, Germany, Seville) (Figure 37). The central object of the exhibition was the Puente del Alamillo (Architect: Santiago Calatrava). Architectural objects realized in the world (1989-1992) confirm that high ranges in architecture can be reached with physically small buildings and with elementary function of the object: Simpson-Lee House (architect Glenn Murcutt) in Mount Wilson, Australia (1989-1994) and Saint Benedict Chapel (architect Peter Zumthor) in Sumvitg, Graubünden (1989). Other buildings demonstrated the skill of architects in modeling and composing architectural volumes: the Morton H. Meyerson Symphony Center (architect Ieoh Ming Pei) in Dallas, Texas (1989) and the Vitra Design Museum (architect Frank Gehry, with Günter Pfeifer), in Weil am Rhein (1989). Architect Renzo Piano with the Rue de Meaux Housing in Paris (1989-1991) demonstrates the possibility of creating a rich natural environment in symbiosis with an artificial environment (which he will raise to a high level in his later realizations, in the realization of low-energy architecture). Architect Rafael Vinoly with the Tokyo International Forum facility in Tokyo (1989-1996) realizes a design-refined and technically-technologically sophisticated building. Architect Nicholas Grimshaw presents a sophisticated High-Tech building at Housing in Camden in London (1989), which impresses with its construction and precision of details [2].

Figure 37. Left: Expositión Universal de Sevilla 1992. Aerial views. Right: Puente del Alamillo (Architect: Santiago Calatrava)

Source: https://www.diariodesevilla.es/sevilla/legado-Expo_0_1128487693.html, Accessed: July 27, 2023.

Source: https://sevillasecreta.co/calatrava-gran-error-del-puente-del-alamillo/, Accessed: July 27, 2023.

4.32 Expo 2000/EXPO Hannover 2000 (June 1 - October 31, 2000)

The main theme of EXPO Hannover 2000 was: Humankind, Nature, Technology. It refers to a complex perception of human existence in which, each for himself and their synergistic participation, man, society and nature are essential. That is why this complex topic is illuminated by the accompanying topic: Familiarity and Solidarity. In this way, EXPO Hannover 2000 gave the opportunity to promote a wide range of topics and architectural ideas, from those where traditional culture (and architecture) is presented with an emphasis on their compatibility with this but also with all future times (the future is woven into them bioclimatic sustainability, as the principle of organization), showing innovative constructions and materials, a new approach to architectural composition, new concepts for defining the boundaries of architectural space, a completely new way of using traditional materials, using already used materials (affirming the principle of recycling)... EXPO Hannover 2000 convincingly presented everything the best that the modern world had achieved up to that

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time and gave a strong impulse to every kind of effort for a more meaningful and better human life, in society and in a healthy natural environment (Figure 38). The central object of the exhibition: Hermes Tower [2]. The architecture realized in the world at the very end of the 20th and the beginning of the 21st century could be characterized as High-tech architecture. New concepts of designing and composing architectural space also arise as a result of improved space modeling software, new materials (especially those whose transparency can be controlled), new technical-technological solutions that "print" computer drawings in the material, even in 3D format. A big challenge for architects is not only new buildings, but also buildings that belong to the cultural and historical heritage, where contemporary interventions have become a new field of expression of architectural creativity. A good example is the Reichstag building redevelopment project (architect Norman Foster) in Berlin (1999). Among the extremely valuable architectural realizations of this period can be included: Dominus Winery (architects Herzog & de Meuron) in Napa Valley, California (1999), Sony Center Berlin (architect Helmut Jahn) in Berlin (2000), Culture and Convention Center (architect Jean Nouvel) in Lucerne (2000), Naked House (architect Shigeru Ban) in Kawagoe, Saitama prefecture (2000), 30 St Mary Ax - "Swiss Re" (architect Norman Foster) in London (2000-2004), Torino Palasport Olimpico (architect Arata Isozaki) in Turin (2000-2006), Antwerp Law Courts (architects The Richard Rogers Partnership) in Antwerp (2000-2006), "De Citadel", housing and commercial center Almere (architect Christian de Portzamparc) in Almere, the Netherlands (2000-2006)...

Figure 38. Left: EXPO Hannover 2000. Aerial view of the exhibition area. Right: Hermes Tower

Source: https://www.aerialphotosearch.com/info/aerial-photos/pavilion-exhibition-grounds-world-expo-open-area-kaiserhof-hannover-lower-saxony-180877.html, Accessed: July 27, 2023.

Source: https://mapio.net/pic/p-21017151/, Accessed: July 27, 2023.

4.33 Shanghai World Expo China 2010 (April 30 - October 31, 2010)

The main theme of Shanghai World Expo China 2010 (Shanghai 2010) was: Better City, Better Life. The Great World Exhibition reminded the entire world of the significance of the city as man-made nature, and problematized it through the very urban setting of the exhibition, the conceptualization of individual pavilions, and the complexity of human life in built structures (Figure 39). The complexity of the city and the achievement of a quality life in it were problematized through many scientific meetings and workshops held at the exhibition. The central object of the exhibition was Expo Axis (Architects: SBA international Stuttgart/Shanghai). In the observed period (2009-2010), a large number of buildings were realized in the world with the stated intention of reflecting the spirit of the 21st century with their concept, design and appearance. New techniques of artificial lighting provided a powerful tool for the architectural articulation of space, which, in addition to all the previous ways of presenting some architectural realization, introduced the appearance of the object at night. Among the multitude of successful architectural realizations, we single out a few: Macao Science Center (Pei Partnership Architects), (2009) , Convention Center Dublin (architects Kevin Roche & John Dinkeloo), (2010), Shanghai Oriental Sports Center (architect Meinhard von Gerkan) in Shanghai (2010), Yitzhak Rabin Center (architect Moshe Safdie) in Tel Aviv (2010), Guangzhou Opera House (architect Zaha Hadid) in Guangzhou (2010), Museum der Kulturen (architects Herzog & de Meuron) in Basel (2010), City Cultural Center (architect Wang Shu) in Jinhua (2010), Eli and Edythe Broad Art Museum (architect Zaha Hadid), East Lansing (2010-2012) in Michigan, Masdar City (architect Norman Foster), (2010-2013) [2]...

Figure 39. Left: Shanghai World Expo China 2010 Situation. Right: Expo Axis (Architects: SBA international Stuttgart/Shanghai)

Source: https://www.pinterest.com/pin/map-of-expo-2010--102949541468174180/, Accessed: July 27, 2023.

Source: https://www.britannica.com/event/Expo-Shanghai-2010, Accessed: July 27, 2023.

4.34 Esposizione Universale di Milano 2015/Expo Milan 2015 (May 1 – October 31, 2015)

The main theme of Esposizione Universale di Milano 2015 (Milan 2015) was: Feeding the Planet, Energy for Life. This exhibition reminds humanity of the two elementary dimensions of existence, which are two forms of its uniqueness, and which the great scientist Albert Einstein expressed with the expression: E = mc2. This large main topic is covered through a series of narrower-oriented topics. Individual pavilions of the exhibition present different natural environments, people, peoples and cultures with their distinctive features in a new, sophisticated way (Figure 40). The central object of the exhibition was the EXPO Centre. New concepts for composing architectural space, new materials that give architectural objects a previously unseen appearance are the characteristics of many architectural objects realized in the period (2013-2015), of which we single out some: DePaul University (architect César Pelli), The Theater School, Chicago, Illinois (2013), Tower 4 (150 Greenwich Street) of the new World Trade Center (architect Fumihiko Maki) in Manhattan, New York (2013), Vitrum Apartments (architect Richard Meier) in Bogotá (2013), Arena da Amazônia (architect Meinhard von Gerkan) in Manaus (2013), Princeton Neuroscience Institute (architect José Rafael Moneo Vallés) in Princeton, New Jersey (2013), Emerson College Los Angeles Center (architect Thom Mayne) in Los Angeles, California (2014), 520 West 28th Street (architect Zaha Hadid) in New York (2014) [2]...

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Figure 40. Left: Esposizione Universale di Milano 2015. Situation. Right: Lake and fountain
Source: https://italyexplained.com/milan-expo-2015-what-you-need-to-know/, Accessed: July 27, 2023.
Source: https://www.flickr.com/photos/51618061@N06/17552516673, Accessed: July 27, 2023.

3.35. EXPO Dubai 2020 (October 20, 2020 – April 10, 2021. Due to COVID 19, the EXPO was held 1 October 2021 - 31 March 2022)

The central building of the exhibition is Al-Wasl-Plaza (Figure 41). The exhibition plan was prepared by one of the most famous design houses in the world, Hellmuth, Obata + Kassabaum (HOK), under the title A Sustainable Master Plan. The main theme of the exhibition is: Connecting Minds, Creating the Future. The complexity of the topic and its relevance today announced the extraordinary reach of EXPO Dubai 2020 in all dimensions of life, that is, architecture as its framework [2].

Figure 41. Left: EXPO Dubai 2020 (A Sustainable Master Plan). (Architects: Design firm HOK). Right: Central exhibition building
Source: https://www.hok.com/projects/view/dubai-expo-2020-master-plan/, Accessed: July 26, 2023.
Source: https://www.timeoutdubai.com/news/434855-work-on-expo-2020-dubais-central-pavilion-has-been-completed
Accessed: July 27, 2023.

Conclusion

Great world exhibitions (EXPOs) are global gatherings of nations dedicated to finding solutions to the most important challenges of our time by offering a 'journey' within a universal theme through engaging and comprehensive activities. World exhibitions receive millions of visitors[7], enable countries to build extraordinary pavilions and transform the host city for years to come. „Nobody, however, who has paid any attention to the peculiar features of our present era, will doubt for a moment that we are living at a period of most wonderful transition, which tends rapidly to accomplish that great end, to which, indeed, all historical points - the realization of the unity of mankind. Not a unity which breaks down the limits and levels the peculiar characteristics of the different nations of the earth, but rather a unity, the result and product of those very national varieties and antagonistic qualities. The distances which separated the different nations and parts of the globe are rapidly vanishing before the achievements of modern invention, and we can traverse them with incredible ease; the languages of all nations are known, and their acquisition placed within the reach of everybody; thought is communicated with the rapidity, and even by the power, of lightning. On the other hand, the great principle of division of labor, which may be called the moving power of civilization, is being extended to all branches of science, industry, and art“ [12]. From the First World Exhibition held in London in 1851, a concept was created that became popular, and which was then repeated around the world, demonstrating an incomparable power of attraction. Since the establishment (1928) of The Bureau International des Expositions (BIE) to regulate and supervise these events, the World's Fairs have been expressly organized around a theme that attempts to improve the knowledge of mankind, takes into account human and social aspirations, and emphasizes scientific, technological, economic and social progress. Large world exhibitions were places for the promotion of the most significant scientific discoveries and technical-practical solutions, which, not long after, became applicable around the world. „Science discovers these laws of power, motion, and transformation; industry applies them to raw matter, which the earth yields us in abundance, but which becomes valuable only through knowledge. Art teaches us the immutable laws of beauty and symmetry, and gives our productions forms in accordance with them. Gentlemen - the Exhibition of 1851 is to give us a true test and a living picture of the point of development at which the whole of mankind has arrived in this great task, and a new starting point from which all nations will be able to direct their further exertions“ [12]. These were places where information was acquired and exchanged between nations and states and people-individuals. In the modern age, World Exhibitions are unrivaled among international events in terms of size, scope, duration and number of visitors. They are large platforms for education and progress that serve as a bridge between governments, companies, international organizations and citizens. The last Great World's Fair was held in Dubai, United Arab Emirates (between October 1, 2021 and March 31, 2022). The next Great World Expo will be held in Osaka, Japan, between March 13 and October 13, 2025.

[7] The most visited EXPO so far is the World Expo, Shanghai 2010 (73.5 million visitors)
Source: https://www.bie-paris.org/site/en/all-world-expos, Accessed: July 26, 2023.
The most visited world football championship: 2014 FIFA World Cup, Brazil (3.43 million visitors)
Source:https://www.rookieroad.com/fifa-world-cup/which-fifa-world-cup-has-had-the-largest-attendance-6306059/, Accessed: July 26, 2023.

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