3022b Architectural Theory II: 1968–Present

Student Artem Melikyan

Professor Marta Justo Caldeira

“The influence of science and technology on the development of architectural discourse in the twentieth century. Emergence of cybernetic architecture”.

The beginning of the twentieth century could possibly be considered the most dramatic and most productive period in the global architectural history.

Indeed, architecture has never been a static phenomenon and even before the end of the nineteenth century architects had constantly rethought the notion of their creative approach, which resulted in new “styles”. But these changes, though often informed by the new building techniques, more or less remained within the architectural field alone.

The Industrial Revolution of 18th-19th centuries presented to architects the whole new range of materials and techniques that allowed for the new spatial solutions and the new quality. Encouraged by these new opportunities, and at the same time realizing incongruity of the “ historic styles” with the new techniques, architects of the 20 Century Modernism quit philosophy of Art Deco and previous styles, and started investigating technology and science for the foundations to constitute the new architectural language.

The purpose of this paper is to trace the development of scientific and technological discourses within the field of architecture through the 20th century by consideration and comparison of three generations of architects, which marked important stages in the dialogue between technology and architecture: the generation of 1920th, the post-war architects, as well as contemporary architects.

The precedent for implanting the new technology in architecture was set with the appearance of pre-fabrication techniques, diffusion of iron and glass during Industrial Revolution. One of the earliest innovations in building techniques of that period, associated with the appearance of cast-iron, was William Strutt's first fireproof mill at Derby. It was built in 1792-3, with floors on shallow brick arches supported on cast-iron pillars. But the real manifestation of the achievements of Industrial Revolution and new techniques happened with the construction of the Crystal Palace for the Great Exhibition in London by Paxton in 1851. That was a huge structure (560 meters long and 30 meters high) celebrating cast iron and glass.

The advancement of industrial age became well-theorized later in the works of Corbusier and Walter Gropius. In his book: "Towards a new architecture" (1927). Corbusier stated that only an engineer, guided by economy and precise calculation puts an object in harmony with the universal law. Thus, the engineer's aesthetic becomes expression of this harmony. The pure forms generated by the engineer, being simple in their geometry, are easier to appreciate by the viewer, and thus more expressively efficient.

Corbusier especially emphasized value of the machines as something to draw a lesson from. On the example of the airplane Corbusier pointed to the clarity of the problem stated and its realization. "The problem of the house has not been stated yet" [1], but "a house should be a machine for living in"[2]. He saw a great meaning in the design of an automobile as a product of standardization. In fact, standardization is a result of a research based creation of a type that most effectively fulfills the function with minimum use of means.

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[1] Le Corbusier, Towards a New Architecture, trans. Frederick Etchells (London: The Architectural Press, 1927) 102

[2] Ibid. 10

In a more developed form the idea of mass production was developed later in the work by Walter Gropius “the new architecture and the Bauhaus” (1965). According to Gropius, the main opportunity offered by the rapidly developing technology is possibility to rationalize buildings to then mass produce them by breaking their system into certain typical components. This, nevertheless, would not restrict the architect's freedom in design.

One purpose of such standardization was to coordinate towns as uniformity of type in modern attire has coordinated social life. There would always be, as in the clothes we take on, enough room for the individual expression.

In fact, Gropius envisioned transition of architecture and building from a manual trade industry into factory-organized industry.

Gropius considered it unnatural, that the art of architecture and industry had been completely detached. Removal of individual component from the architecture would, merge these two areas. He emphasized that the “New Architecture” is in no way an obsession with technology seeking to destroy traditional values. On the contrary, his approach, based on a profound research frees architecture of subjective caprice, reestablishing everlasting traditional and structural principles.[3]

It’s important to note, that despite that fact, that Le Corbusier and Gropius emphasized importance of industrialization and ergonomic side of architecture, their works still bore very significant aesthetic and symbolic meaning. Corbusier’s proposal for The Palace of the Soviets in Moscow (1931) celebrates the aesthetic of modern structures. The arrangement of the volumes had purely compositional underpinnings. Corbusier had been inspired by the unity of elements in

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[3] Walter Gropius, The New Architecture and the Bauhaus, trans. P. Morton Shand (London: Faber and Faber Limited, 1955) 19-38

complex at Pisa: the baptistery, the cathedral, and the leaning tower. He reinterpreted it in modernist forms. Even in later works by Corbusier, such as Chindigarh (1956) formal aesthetics and symbolism still play a very important role.

Gropius's proposal for the same competition of The Palace of the Soviets also represented compositional approach. Just like Corbusier, he used segments of the circle, but produced a more enclosed plan. Usage of the pure forms in combination (circle, square, and triangle) was essential to Bauhaus school of design at that time.[4]

Those compositional qualities significantly lost their importance in architectural discourse towards 1960's. Nevertheless, theoretical speculations of Corbusier on "learning lesson of the machines" as well as those of Gropius provided a very important basis for the subsequent development of the architectural thought.

In the middle of the 20th Century the world was shaken by the War. Infrastructures and industries of many European Cities were in ruins. Extremely high unemployment and lack of accommodation for population became the primary concerns for many professionals, including architects. Technology was supposed to help solve these problems as quick as possible. Aesthetic, obviously, became a secondary concern. In Russia, intensive construction of so called "Hrushebi", tiny typical housing units from pre-fabricated concrete elements, helped to considerably solve problem of homeless population after the War. The architectural quality of these units was rather poor - they are currently being rebuilt. In England and the United States, that less suffered the consequences of the War, architects might afford experimenting with relation of technology and architecture in broader social aspects of architectural field.

[4] Maurice Besset, text, Le Corbusier (New York: Rizzoli International Publications, 1976) 16-21

One of the most prominent figures of that period investigating how technology might help render architecture adjustable to changing social requirements was Cedric Price (1934-2003), British architect and influential teacher and writer on architecture.

His most prominent work that celebrated the “machine architecture” was “Fun Palace” (1961). Unlike Corbusier, who was no less interested in engineer’s aesthetic as expression of the harmony, as in the functional consistency of the building, the main focus of Price was performance of the structure and its adaptability to the needs of users. It’s noteworthy that the idea of performance of a building came from the idea of theatrical performance. Originally, the project was inspired by the theatre producer Joan Littlewood, while Price shaped this idea architecturally. According to Littlewood the facility should be a kind of “laboratory of fun”[5], an easily accessible place offering various types of entertainment activities. There would be musical area, with instruments set out available for anyone to perform jam sessions, place for mechanical tests, usually performed by technicians. There also would be areas for lectures and filmmaking, TV and theatre performances, and, possibly private quite place for those unwilling to engage in any of those activities. In fact, Littlewood wanted to use the theatrical idea to develop a vibrant environment for everyday activities of a regional society. Ideally such a facility should not be a static object, but an adjustable, changing structure, accommodating diverse needs. Price’s translated the general idea into physical facilities.

A floor containing various structures is laid out on the ground. Trusswork towers are positioned around the floor at various levels and linked via horizontal or sloped “moving corridors”. Movable walls, ceilings and floors form auditorium, theatre and playground areas, some of

[5] Cedric Price, Re:CP, ed. Hans UlrichObrist (Basel: Birkhauser, 2003) 28

which are suspended from the truss beams overhead. Above these runs a traveling crane used for assembling and transporting parts. There is also a built-in temperature control and lighting. [6]

It's interesting how Price with his notion of "temporal", following Corbusier further shifts the architecture in its conventional definition (as a static subject inextricably linked to the surrounding), towards the idea of a building as an industrial design object, which, being mobile, is supposed to fit in any environment. Price completely destroys the relation of the object to "its soil" and gives an architect total freedom to manipulate the interactive machine as much as he wants. He rejects architecture as a mere statue and endows it with the brain. In this process we might argue we witness the birth of "cybernetic architecture" - reacting to and changing according to the environment and the needs of users.

The idea of "temporal reconfigurable units" was further developed by Price several years later in the project "Potteries Thinkbelt" (1966), which was not a "building" and perhaps not even "architecture", but an 'infrastructure".

Price was working on revitalizing the district of Potteries, where he had been born. This land was an industrial wasteland of ruined factories, rusting machinery, and no employment. The only infrastructure left was the old railroad.

Price proposed utilizing the derelict railway network of the vast Potteries district as the basic infrastructure for a new technical school. Mobile classroom, laboratory and residential modules would be placed on the disused railway lines and shunted around the region, to be grouped and assembled as required by current needs, and then moved and regrouped as those needs

[6] Ibid. 28-36

changed. Modular housing and administrative units would be assembled at various fixed points along the rail lines.

There were to be three major "transfer points,"[7] where various types of mobile, prefabricated housing and classroom units could be transferred to and from the rail lines as needed. Some of these units included self-propelled seminar coaches, with scheduled service of class length between stops so that students could literally learn "on the move." Classroom and laboratory trains could be linked to form larger units. The largest lecture-demonstration units spanned three parallel rail lines and came equipped with foldout decking and inflatable walls.

The housing units were equally inventive. Various types of prefabricated housing modules could be combined in different configurations, densities and terrains, depending on changing needs and conditions. "Capsule"[8] housing was made up of small units arranged in linear layouts on steeply sloping sites with good views. "Sprawl"[9] units had adjustable legs for uneven ground, while "crate" housing units could be plugged into a high rise framework. Like all elements in the Thinkbelt, housing units could be moved around and rearranged as the program changed over time.

Price's plans not only responded to the growing need for technical education, but also addressed the problem of local unemployment by creating a new service industry to operate the vast new

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[7] Stanley Mathews, Potteries Thinkbelt: An architecture of calculated uncertainty (Assistant professor of art history, Hobart & William Smith Colleges. September, 2000), http://people.hws.edu/mathews/potteries_thinkbelt.htm

[8] Ibid.

[9] Ibid.

technical school. He was able to obtain some of the first computer generated data from the Ministry of Labor on population and unemployment for North Staffordshire.

Price’s approach could be called “cybernetic”, because it strongly relies on “calculated uncertainty”. Not being clairvoyant, he does not and cannot know what will be needed in the future, and therefore has no "overwhelming desire to 'get it right the first time."[10] The temporary and the temporal are major themes in Price's philosophy of architecture. When Cedric Price writes that the "...time factor is a major element in producing valid designs,"[11] he is referring to time on at least two levels. On the "micro" level, Price argues that the architect cannot accurately predict how initial needs and uses may change over time (a view supported by Karl Popper as well as 'chaos' theory). The architect must therefore acknowledge the impossibility of totalized planning, and build in a degree of indeterminacy to allow for uncertainties in program, obsolescence and complete changes of use throughout the life of the building. But Cedric Price also values “enabling” and “agency” above all else, and trusts the working classes to decide their own future. For Price, the best of all possible designs is that which people can in the future manipulate and use as they see fit.

Again, in this project we see how Price’s paradigm is shifted away from the symbolic or aesthetic meaning, he is aimed at directly improving the lot of “downsized” workers, the social environment. Social advancement and individual freedom are the core values which motivate Cedric Price and inform his use of technology. In his “On safety pins and other magnificent designs,” (1972) he writes, “no one should be interested in the design of bridges – they should be

[10] Ibid.

[11] Ibid.

concerned with how to get to the other side." Although information technology was still in its infancy at the time, the paradigm for the Potteries Thinkbelt represents the electronic computer circuit of the third machine age, capable of temporal transformation, of being reprogrammed and becoming an entirely different instrument at different times and situations. [12]

The notion of reprogrammed computer circuit and networking reached extreme expression in 1960s. It grew into the idea of the "prosthetic extension"[13] of the human body through elections. Canadian educator, philosopher, and scholar, Marshal Mcluhan positively argued, that as consequences of our electronic connection to globalized network of communication, we have lost the simple boundary of our body, which ultimately have been expanded to the size of our planet and became social instruments. Our nerves are continuous with those of computers, so that people are wired into the thinking interconnected machines.[14]

In his work "The Guttenberg galaxy" (1962), Mcluhan refers to the "new organic-biological modes of the electronic world". "The World has become a computer, an electronic brain…and as our sensors have gone outside us"[15]. Prosthetic extension is paralleled by extension inwards, with electronics going as deeply into consciousness as consciousness has reached outwards. Unlike Price, an architect, who, transfers the network idea into design language, Mcluhan, the

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[12] Ibid.

[13] Mark Wigley, "Recycling Recycling" in Eco-Tech Architecture of the In-Between (New York: Princeton Architectural Press, 1999) 1-14

[14] Mark Wigley, "The Architectural Brain," in Network Practices: New Strategies in Architecture and Design, ed. Anthony Burke, Therese Tierney (New York: Princeton Architectural Press, 2007) 30-53.

[15] Ibid. 46-47

philosopher, speculates more metaphorically. The “prosthetic extension” in his interpretation is a social crisis of electric age, when all of a sudden our senses are not closed systems anymore, and translated into each other in experience, he calls “collective consciousness”.[16]

With an unparalleled artistic quality the notion of networks had developed in the projects by the British group Archigram. Their project “Plug-in city” (1962-1966) is a large-scale network structure, containing access ways and essential services, to any terrain, which was a dramatic difference from the “Potteries Thinkbelt” project, made strategically for the certain site, in order to revitalize it. The network is a holder for units that cater for all needs. These units are planned for obsolescence, and they are served by the cranes operating from the railroad at the apex of the structure. [17]

Arguably, Archigram’s drawings were some of the most beautiful works coming out of the architects in the 60’s. In their designs, the architecture reestablishes it’s formal qualities that it had lost in the projects by architects like Price. Archigram were exactly those, who in Price’s terms were interested in the design of bridges, rather than in how to get to the other side. Indeed, Archigram is interested in the formal side of design, but it expresses building imagery not through sculpting, but through mechanical devices and electric impulses, generated by the social activity. The group was trying to push architecture up to the level of the current artistic, architectural, as well as a cultural development. As the exhibition “Living City” demonstrated, cities are not just a vast spatial formations, but “a machinery of a perpetual cultural exchange”[18].

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[16] Marshal Mcluhan, The Guttenberg galaxy (London: University of Toronto Press, 1962) 5

[17] Peter Cook, ed., Archigram (New York: Praeger Publishers, Inc., 1973) 36-44

[18] Simon Sadler, Archigram: architecture without architecture (Cambridge, Mass. : MIT Press, 2005) 8

At this exhibition was expressed the notion of "disappearance of architecture"[19]. Contrary to Gropius's earlier celebration of industrialization and pre-fabrication based architecture, the Archigram showed that this modernist tendency ultimately leads to shift of the process from an architect to the user-client relationship, which actually is the "disappearance of architecture", since it leaves the process without the real original creator. Archigram's direct address to the cultural and artistic aspects as well as the way it promoted the ideas, which was acting through small magazines, demonstrative exhibitions, and polemic, made it one of the most prominent avant-gard movements of the 1960's.[20]

In two decades after conception of the Fun Palace, the world saw one of the most ambitious attempts to bring the ideas of Price and Archigram to life. That was in the design of the Pompidou Centre by Renzo Piano and Richard Rogers (1977). Although today, when a visitor finds himself in that building, it doesn't remind him of those experiments of 60's – he just witnesses a vey quality static hi-tech piece. When Dennis Crompton of Archigram visited the newly opened live center of information, he responded: "well, where is it?" There were no movable floor plates, not even screens, and other information age hardware: only the bare structural frame remained.[21]

The technology had made a great stride since Fun Palace. Communication systems had improved enormously; color television and video technology were introduced with various broadcast

[19] Ibid.

[20] Ibid.

[21] Ewan Branda, Virtual Machines: Programming Beauburg's Information Spaces (paper submitted to the Society of Architectural Historians 2008 Annual Meeting) 1

programs in different countries (SECAM in France, PAL in England, NTSC in the U.S. and Japan). These new information and broadcast technologies were utilized in Pompidou.[22]

The initial program of the competition stated the main theme of the Pompidou is that of the information organization and dissimilation. “The entire Centre”, it announced “has been inspired by the original perspective, that of the constantly renewing information: news of artistic creation in its many forms, news of industrial design, and especially the constant keeping up-to-date of those institutions. Library and Museum, which may be considered the memories of ideas and forms”.[23] The building would have to be permeable to information and activities flowing to and from its environment, and that this permeability would be achieved by various means such as visual transparency, electronic screens, exhibition television broadcasts, publications, and a remotely accessible electronic library catalog would extend the Center’s reach to the whole of France and to other countries. The brief thus described a condition not just of the correct juxtaposition of function, but of their integration into a condition in which knowledge is produced and shared through chance encounter between expert and public, through electronic media and temporary exhibitions. Flexibility and mobility were the core requirements of the competition brief. These would allow the building to be “a living and complex organism”. “The reconfigurable interior would make it possible to adjust to evolution of the activities and desires of the public”[24].

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[22] Beaubourg: Process & Purposes, Architectural Design, Feb. 1977, 104-127

[23] Ewan Branda, Virtual Machines: Programming Beauburg’s Information Spaces (paper submitted to the Society of Architectural Historians 2008 Annual Meeting) 6

[24] Ibid. 7

Apparently, Piano and Roger's initial scheme most completely responded to those rather vague requirements. Peter Rice of Arups described it as a "large, loose-fit frame where anything could happen, loosely based on Archigram, Price…an information machine with movable floors, like the Fun Palace"[25].

Nevertheless, halfway into the construction, Rogers said: "We have not been able to go as far as we like, of course. We are limited by money, by our own technology. …"[26]

The resulting building was more like a snapshot of as Fun Palace, rather than a similar machine with movable parts. The idea of flexibility was ultimately realized through confinement of all the technology to the edges of the building and the ceiling, so that the spaces are left open and serviced from above. What a technology could not allow two decades ago, when the Fun palace was being designed, a huge span of the building in two planar dimensions: 48 by 166 meters, was realized in the Pompidou. The huge open space that created a opportunity for temporal programming presented potential for flexibility without use of heavy cranes seen on Price's drawings. Another very important solution, having to do with the information and spatial experience on various scales, implemented in the Pompidou was creation of the entrance though the snake-like escalator ascending to the top. The visitor "takes a tour" through the Central Paris by viewing the City's scope as he goes up the escalator to enter the building. With this fantastic fresh exterior experience one finds himself inside the building, where he gradually goes down to the first floor, as he proceeds with the exhibition, and sees interior apace on all the floors.

[25] Ibid. 8

[26] Ibid. 17

Do these achievements of the Pompidou show that the lack of heavy machinery and equipment pictured on the Price's drawing of the Fun Palace is not that necessary to create flexibility and provide diverse information? Perhaps, yes. And the fact that already in the "Potteries Thinkbelt" project Price shifted emphasis from the hardware towards the idea of minimalistic movable units and infrastructure, and later, in the "Atom" project refused from it at all, partly advocates this answer. The further the development of the architectural thought went the more of the software systems and lighter infrastructures appeared in the discourse, as opposed to heavy machinery.

In description of the current architectural discourse, it would be fair to state that the major part of it strongly depends on digital technologies, no matter to which aspects of design these technologies are applied. The architectural "mainstream" that in all times promoted aesthetic part of architecture utilizes digital software to create formal novelty impossible to achieve without computers. Architects famous for this approach include Greg Lynn, Morphosis, Frank O. Gehry, Coop Himmelb(l)au, Zaha Hadid, and others. But more relevant to the discourse of this paper are those who are still trying to redefine boundaries of architecture, just like architects of 1960's, by borrowing territory from other disciplines. And it's not surprising that most advanced architectural work (in the sense of "the design of space") these days is produced by non-architects. Technologists at places like MIT Media Lab are still developing responsive systems that allow people to interface with their spaces, for example through projection walls, remote devices and 'intelligent' sensors. In fact, this approach throws into question the very role of the architect, because user- and environmentally-responsive mechanisms allow people themselves to take prime position in configuring (that is, designing) their own spaces. At the simplest end of the spectrum, a thermostat regulates temperature according to inhabitants' requirements; at the other, systems that allow for changing color, texture, layout and transparency of walls suggest a circular process of "conversation" with one's environment, a conversation in which architects no longer have priority in defining the boundaries of people's movements and desires.[27] This, actually, is development of the idea of “cybernetics” or “responsive systems”, initiated back in 60’s. It’s interesting to note the appearance of the movement that is critical towards post industrial informational age. Some projects translate the will of society to break free from ubiquitous networking by creating “network free zones’ and private spaces. One of the example is the project “Floatables” (2004) by the office ”Haque”. The question posed in the proposal is:”In an urban environment that is so data-saturated can a distinction between public and private space really claim to exist?”. A floatable jellyfish-like vessels, main objects of the project, drift around cities, creating temporary, ephemeral zones of privacy: an absence of phone calls, emails, sounds, smells and thermal patterns left behind by others. Through various electrical systems they are also able to prevent access of GPS devices, television broadcasts, wireless networks and other microwave emissions. Finally, by creating a "blurry barrier"[28] and a ground-plane camouflage pattern, they provide shielding from the unembarrassed gaze of security cameras and surveillance satellites. Floating around urban environments, in the tradition of architecture that tries to break free from the confines of gravity, the vessels provide fleeting moments of private visual space, auditory space and olfactory space -- occupants can wander in at will when they happen to catch sight of one nearby. The spaces of absence created here are left to be filled with people's own sounds, alpha-waves, smells and laughers. The vessels are powered mainly by sunlight and wind but are supplemented by inducted electricity from mobile phones and

[27] Usman Haque, Dressing the shadows of architecture, 2005, http://www.haque.co.uk/papers/dressingshadowsofarch.pdf

[28] Ibid.

networks (in crowded spaces this amounts to several dozen Watts of unexpended power). Buoyancy is achieved by heating or cooling air in a floatation sac, much like hot air balloons. The entire structure (total weight 4.1 kg) can collapse or expand as necessary to alter surface area in response to wind speed and altitude. The vessels have no particular destinations and drift like flotsam around the city. However, they must keep moving because to be discovered by the authorities means almost certain destruction.[29]

An interesting cross-disciplinary approach is presented in the works by the office “Servo”. Decentralized across four cities, the collaborative “Servo” borrows its name from an apparatus common in the field of cybernetics. Servo motors translate digital code into mechanic processes. Behaving principally as enablers, servo motors allow two discrete languages to converse and interact. Similarly, Servo organizes, coordinates, and ultimately enables, at a variety of scales, new as well as existing relations between participants, technologies, disciplines, modes of production and communication, as well as a variety of cultural influences specific to each city in which it operates. [30]

Their recent project “HYDROPHILE - Hydrodynamic Green Roof” (2010) is a part of an ongoing research exploring the development of synthetic architectural systems that are informed by the formation, function, or structure of biologically produced substances and materials and biological mechanisms and processes. Bioscience includes the branches of natural science dealing with the structure and behavior of living organisms, including ecology, biology, and botany. The intention of the Hydrophile project was to reconsider the green roof typology as an

[29] Haque Design + Research office, http://www.haque.co.uk/floatables.php

[30] AKAD practice-based research projects in architecture and design with (2003) support from the National Research Council, http://www.akad.se/Krets_VR_documentation.pdf

occupiable zone characterized by immersive depth. The conventional green roof is comprised of a thin, primarily horizontal substrate for growing low-water plants and enabling rainwater runoff. SERVO's approach involves the design of a roof system comprised of swollen volumes that house various programs associated with a bioscience innovation center. These volumes are suspended within a more extensive building envelope that is partially below grade on the existing site. The primary performative aspect of the Hydrophile is the cultivation of biotopes on and through a variegated roofscape augmented with systems for percolating water through soil substrates. Visitors to the center will experience the green roof from several vantage points: either from above – walking amidst a dense landscape of indigenous vegetation intertwined with protuberant forms that emit water, air or light; from below - as a suspended ceiling system that pulls down to close proximity with the floor; or from within - in the interior of the auditorium space and specialized laboratory areas designed for the cultivation of vegetation in semi climatically-controlled microclimates. The roofscape is thus extremely sectionally varied. Each protuberance has a specific performance in the green roof system (i.e. apertures for ventilation, lighting, irrigation). The main driving factors for the design of the Hydrophile building and its plant communities are the substrate thicknesses, substrate design and the roof topography, roof geometry. The roof topography is used to direct water to depressions where large amounts can be stored to support wet meadows and even more wet areas such as fens. The substrate thickness is used to create vegetational gradients ranging from shrublands and meadows on thicker substrates to dry meadows and heathland on thin substrate layers.[31]

This project is an interesting example because it deals not only with the computer-generated formations, but with the bioscience technology. One essential element (in this case – a green roof)

[31] Servo, HYDROPHILE - Hydrodynamic Green Roof (explanatory note to the project, 2010)

simultaneously adapts to several environmental conditions: to creation of hydrodynamic torrents for amelioration of plants and generation of biotopes, and at the same time to the spatial conditions of the interior space of the bioscience center.

The science and technology has been a part of an architectural discourse ever since early twentieth century. Corbusier and Gropius manifested the achievements of materials and technologies of industrial age and challenged the conventional paradigm of architecture – a static solid inextricably related to its site. The new paradigm that started evolving later, since 1930's could be called "cybernetic architecture" – that of the architecture, reacting and adjusting to the users and the environment. Architects of the 30's and post-war period tried to realize this idea in form of a machine, a mechanism. Not intended on realistic representation of their proposals some of those, like Archigram group, turned their technological architectural designs into some form of art and cultural manifestations, while others, like Price always tried to treat it as a real project.

Pompidou Centre by Renzo Piano and Richard Rogers was one of the most prominent attempts to realize the ideas of flexibility conceived back in 1960's by Price and Archigram.

With the further development of cybernetics, the soft systems gradually replaced hardware. The discourse shifted more towards the notion of networks and prosthetic extension of bodies as a result of advancements in communication means, along with the intensive globalization process. Current architectural discourse of the post-industrial society continues to borrow from other disciplines, with non-architects producing some of the most interesting experiments. The cybernetics in architecture is still being developed. While the role of digital as both design tool and communication tool became completely integral with the architectural process, the importance of an architect is often questioned, especially in the case of proposals for reconfigurable systems with users defining the configuration themselves. The discomfort in the society associated with ubiquitous networks and communication systems makes some architects take a critical stand and propose “network free spaces” to celebrate private space. But the scientific advancements are still relentlessly dragging the architecture forward. What is to come as a result of the information age? Are we all going to become cyborgs with all the senses further extended into global network, like Mcluhan and others predicted in 1960’s? Or will we make an attempt to limit and smartly regulate the influence of scientific knowledge on our space and life?

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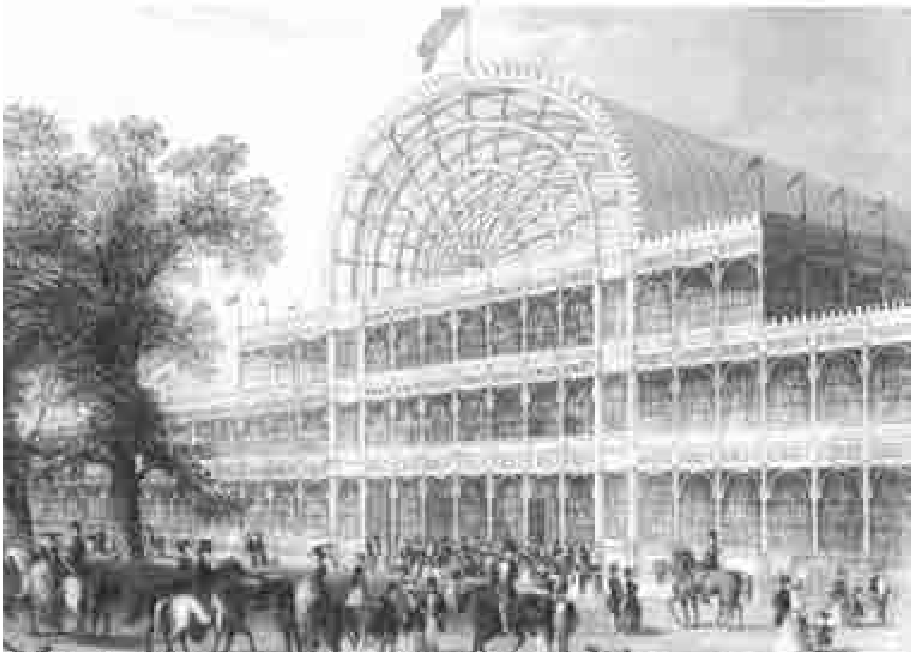
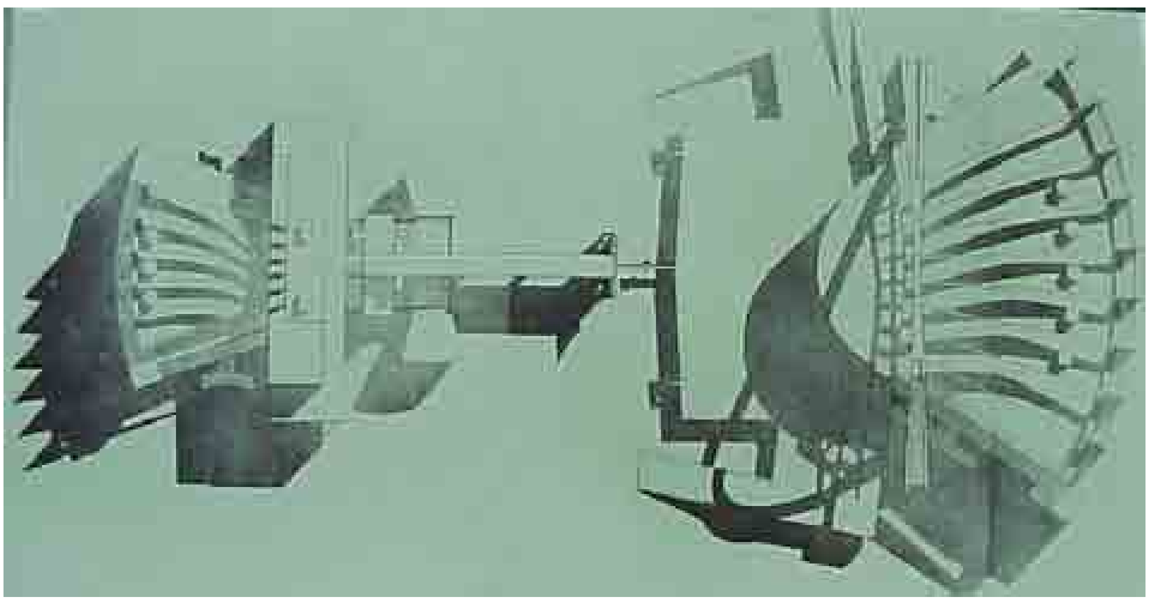
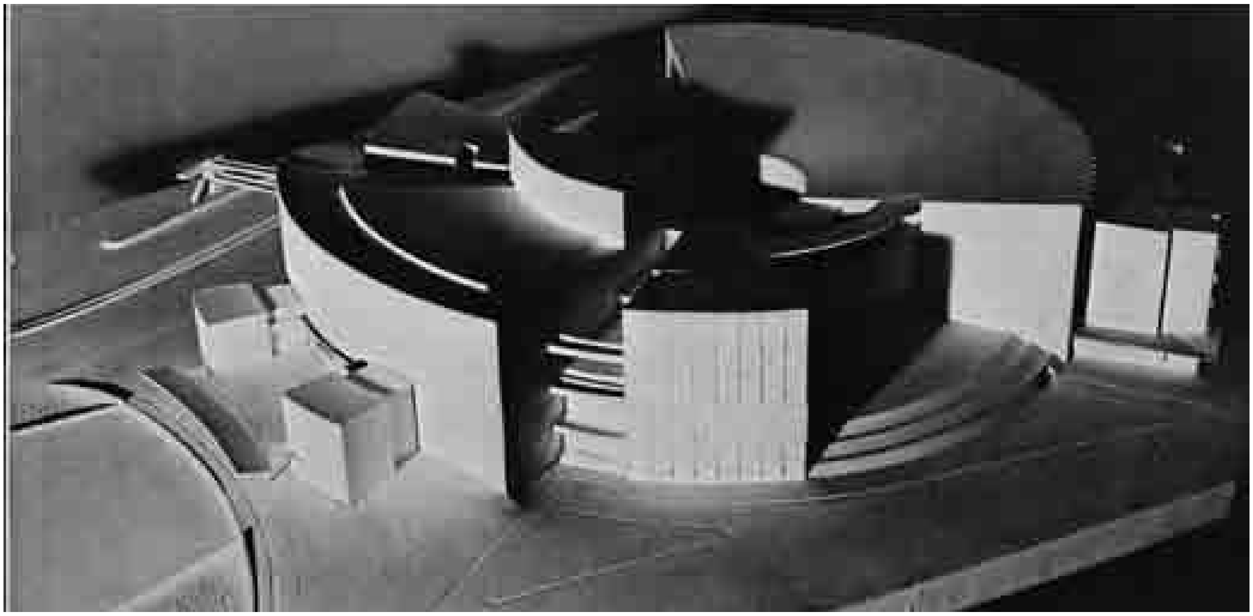


Paxton, Crystal Palace, 1851

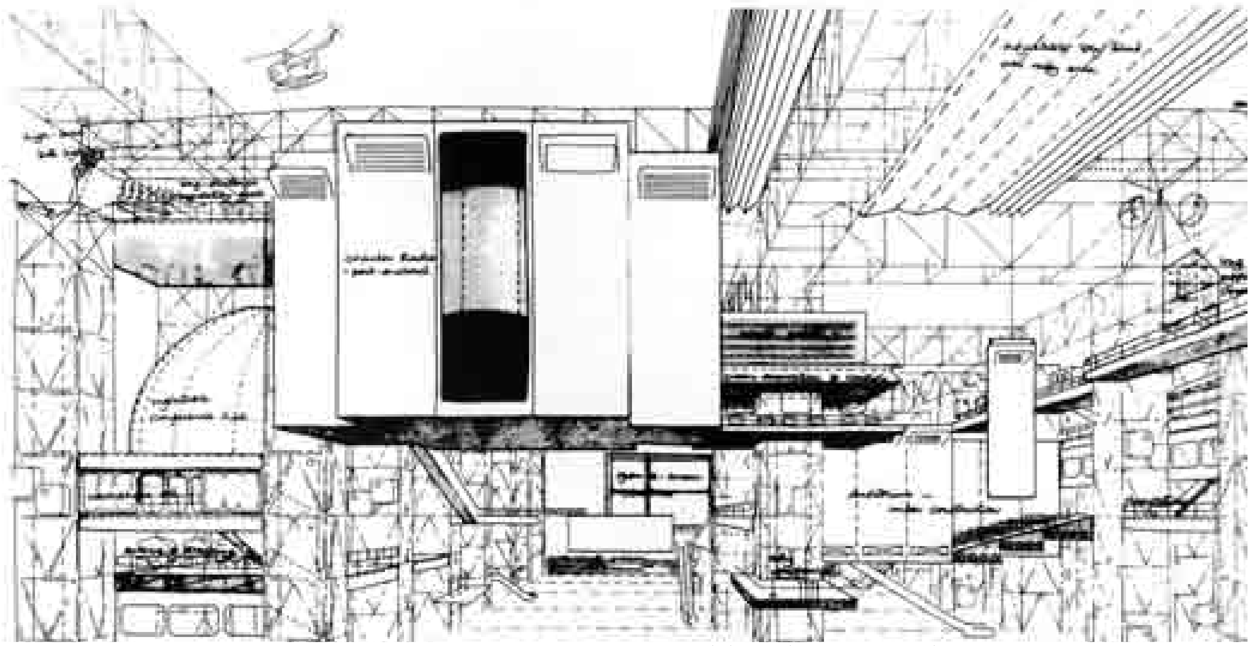


Le Corbusier, The Palace of Soviets, 1931

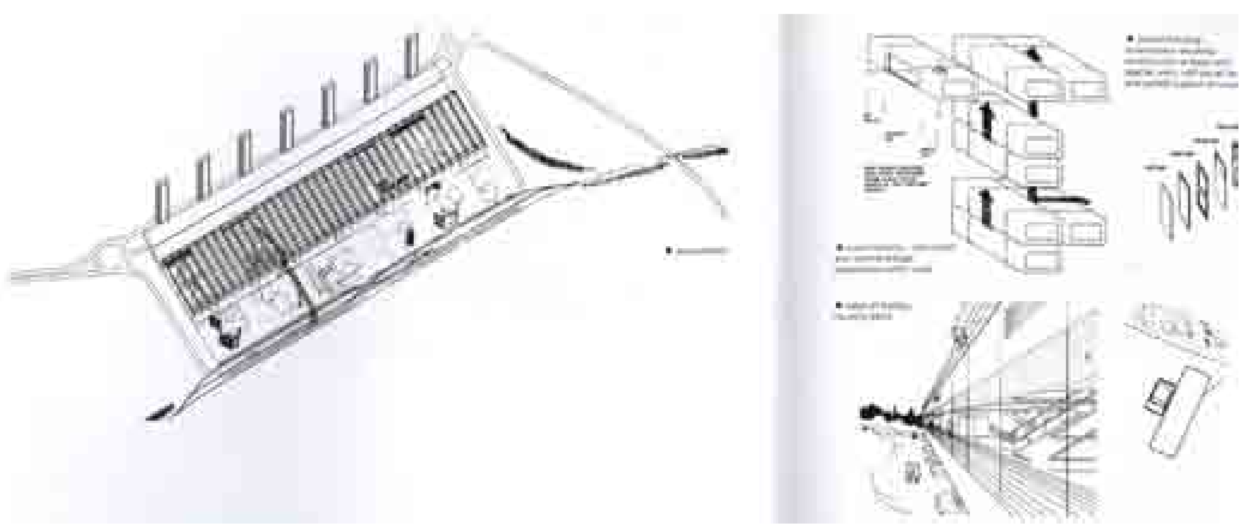
Le Corbusier, Chindigarh, 1956



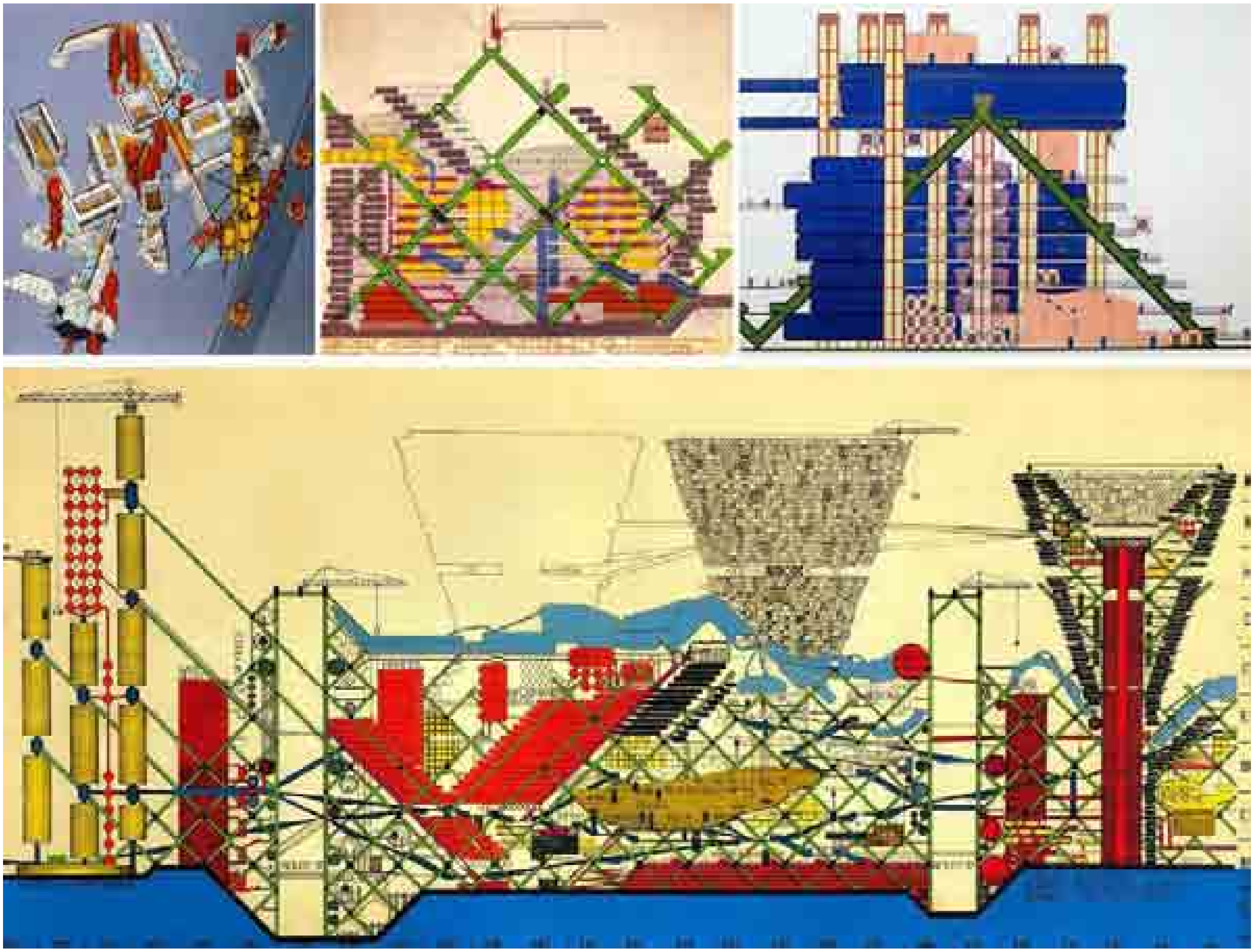
Walter Gropius, The Palace of Soviets, 1931



Cedric Price, Fun Palace, 1961



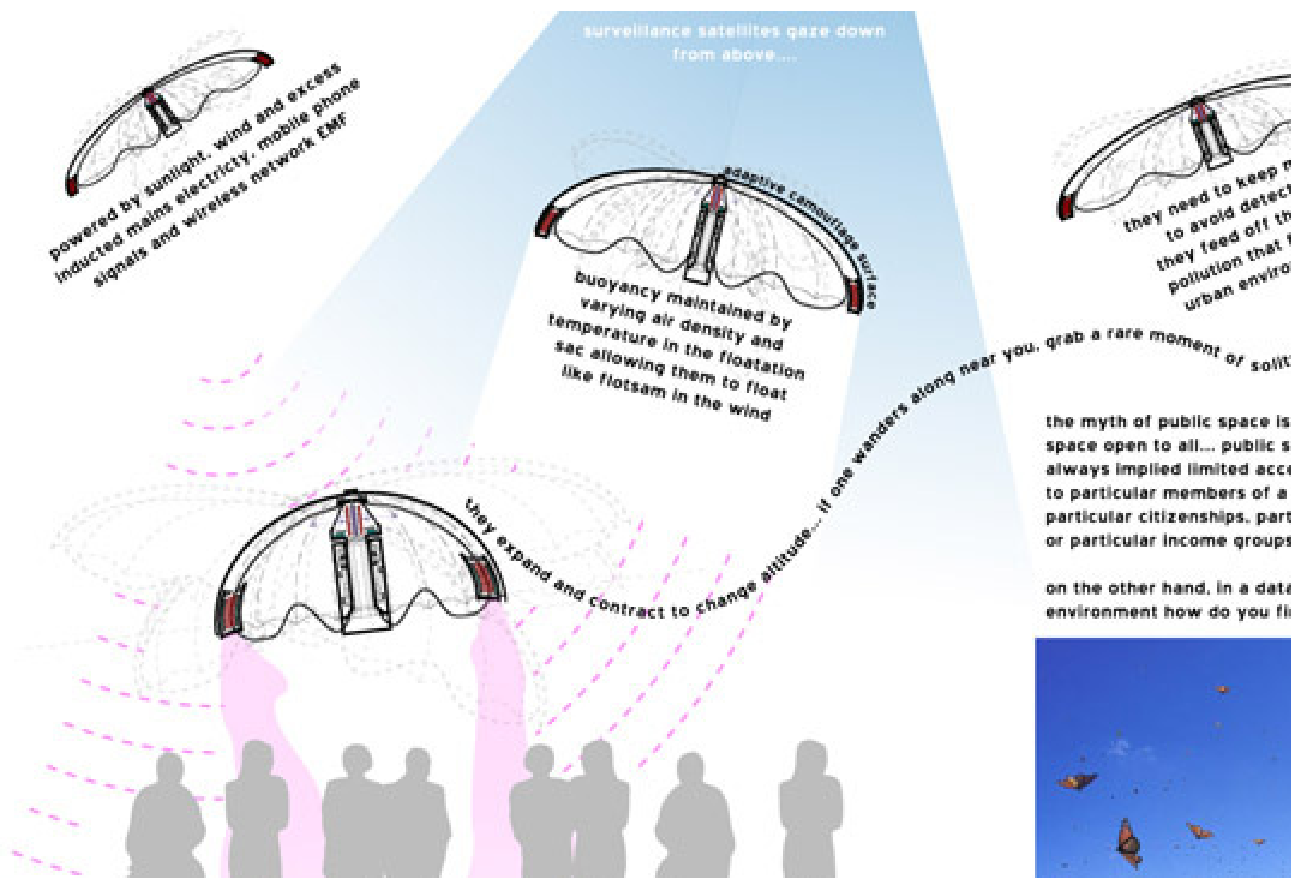
Cedric Price, Potteries Thinkbelt, 1966



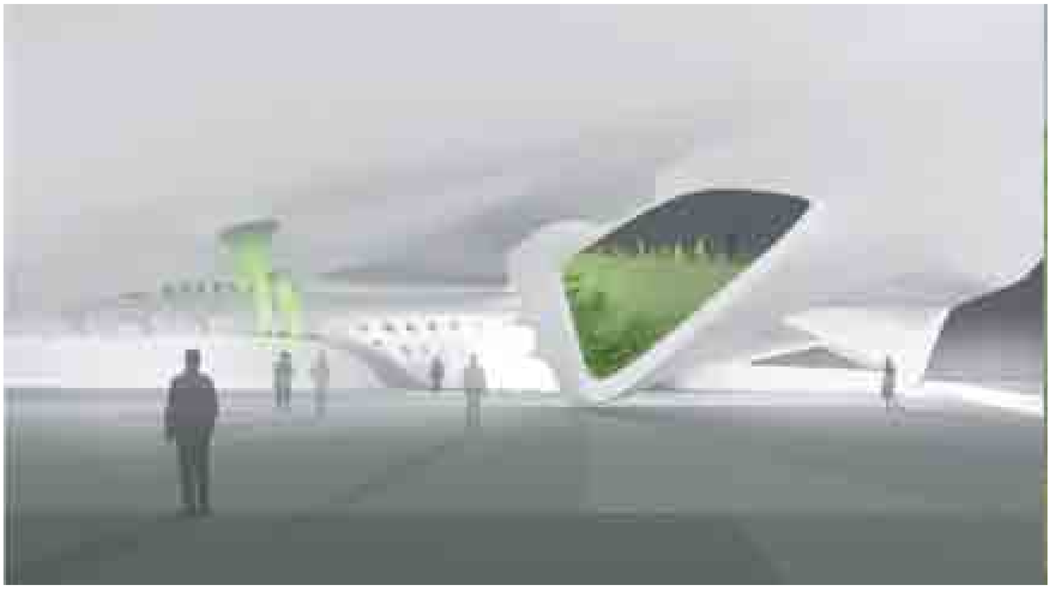
Archigram, Plug-in City, 1962-1966

Pompidou Centre, Renzo Piano and Richard Rogers,1977

Haque, Floatables



Haque, Floatables



Servo, HYDROPHILE - Hydrodynamic Green Roof, 2010

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