Plastic

Brihacescu Lucian[1]
Faculty of Architecture and Urbanism, Politehnica University of Timisoara, Romania[1]
lucianbrihacescu@gmail.com[1]

ABSTRACT
The first part of the article describes the context and reasons that generated the Archigram movement as well as its main principles and projects. The second part follows the impact it had, on visual arts and on the mentality of the generations that followed, as well as on the new context that makes sort of possible, usable and effective some of the radical avant-garde concepts proposed by the group.

Keywords: Archigram, inflatable, plastic, avant-garde, virtual

I. INTRODUCTION

Getting over the fact that each generation recycles paradigms of its previous one, over the unavoidable contamination of ideas brought by globalization, over the background noise of social media, the main features of our present paradigm (the revamped bright colors of the eighties, the "aesthetic", the "satisfying", the game "Minecraft" and liquid jazz of the Neowave , the omnipresence of all those fairy-tale superheroes in contemporary movies, the fantastic and happy/sad animated worlds of introverts like Pendleton Ward and Rebecca Sugar and the new revived 8-bit arcade games) bear the signs of a rather strange nostalgia, an escapism, a melancholic state of expectation.

The generation of kids who matured through the financial crisis, the works of 30 to 40 years old artists who are living now their years of creative maturity, the creatives that already reached the age of 40 and who lack their promised future (and by the way, where is my jet-pack, where is my flying car, where are the androids and my space travel, where is my teleporter?), the almost disappeared generation of those who survived the World War 2 and who were forced to reconstruct a world in ruins, all of that above might be the cause of it.

There is no wonder that the aesthetic visual expression of this nostalgia are the seventies and the eighties, years of enthusiasm, effervescence and expectation, the era of cyberpunk, neo-romantic, hi-tech and unreasonable architecture. Those are the years of the last known major avant-garde, the years of Archigram.

II. CONTEXT

This colonial approach of the group has deep roots in the post war period, time of reconstruction and radical solutions. In the post- war era, the destroyed but economically independent England had to reconstruct its ruined cities. Aluminum, due to its low cost and its versatility, was the material chose for this mission and the result were the Aluminum Bungalows made available to war homeless, through the "Temporary Housing Program" (1945). Every bungalow arrived on site, fully equipped and with its entire plumbing system, ready to be just connected on site [1].

On the other hand, mega-structures on rails, industrial exoskeletal immense buildings, the exposed pipes and the steam technology were already a part of the industrial England visuals. For example, "The West Cliff Rail", built in Bournemouth (fig.1), the town where Peter Cook studied, was one of his sources of inspiration for his "Plug-in City" sliding cranes.

Fig. 1. West Cliff Rail in Bournemouth–You tube video capture-Copyright user @Nirtrainman

Buckminster Fuller's architecture, with its strange geodesic domes, developed around their technical cores was another important source of inspiration. Also the specific part of his ideology that was centered on escaping the slavery of infrastructure (who was always the strongest barrier in the path of nomadic), by questioning its very nature through all sort of bizarre innovations as, for example, the shower without water. Other major influences were the American automotive industry, (regarded as a success of standardization and of the use of modular and interchangeable parts), the fresh emergency of computer design (applied with success in "Snowden Aviary" of the London Zoo, made by Cedric Price, in 1960) and the bird-eye axonometric, which consecrated the diagonal as a strong aesthetic visual element.

III. A FEW PRINCIPLES

Modernism was no longer considered representative for the generation of the late sixties and the beginning of seventies, years of pure enthusiasm. New forms of architecture were trying to challenge the dominant role of modernism, through Peter and Alison Smithson 's New Brutalism or through the anthropocentric urban

theories of Christopher Alexander.
The weakness of architecture, stated the group, is its inability to represent the movement, the speed and the spirit of its time, so the group promoted the disposable, the frail, the temporary and the consumable. „The rounded corners, the hip, gay, synthetic colors , pop culture props ,the juke-box and the neon lit street "should be combined to create „an architecture of steel, plastic and aluminum", as stated Peter Reyner Banham in 'Zoom Wave Hits Architecture' [2].

III.1. The graphic novel as means of expression

The group puts the legitimate question whether if a social ideal or a marketing strategy can replace the personal talent. It's a mistake to represent the city through a bi-dimensional plan, given the fact that the idea is very likely to be contaminated by its very own form of expression. Also, the two-dimensional image tends to become a plea in itself. It is not surprising, they say, that students produce dry and neutral plans, crisp and gray.
The means of expression were the use of transparent plastic, the pneumatic buildings, the global containers with their maintenance cranes, sliding endlessly along their colossal beams.

III.2. Emphasis of consumerism

"The house should take less than the life of the individual and each generation must produce its own city." The cities should be a complex collection of mega-structures, containing replaceable houses, with modular components. The houses should be replaceable, expandable, single use only.
The rooms should have their periods of validity. At the end of their validity, they will expire, and they should be extracted from the containing grid and replaced. Kitchens and bathrooms expire after 3 years, livings and bedrooms, after 5-6 years, construction sites after 15 years, shops after 2-4 years.
The life is nomad, without roots. Colossal cities move after the sun or after depleting their resources, as Ron Herron's "Walking City" (1966) does, or on the contrary, cities may become modular at the level of the individual use. People will develop personal houses, as a plastic snail shell. Group introduces new terms as the "cushicle" (a portable vehicle), the "suitatlon" (a suit which is also a house and that can connect with other modules with the human skin as the ultimate layer), "info gonks" (glasses of virtual reality), the "Living pod" (a walkable small house). The proposed material is plastic, ideally resistant. Houses were supposed to be inflatable, modular, expandable, built around a core.

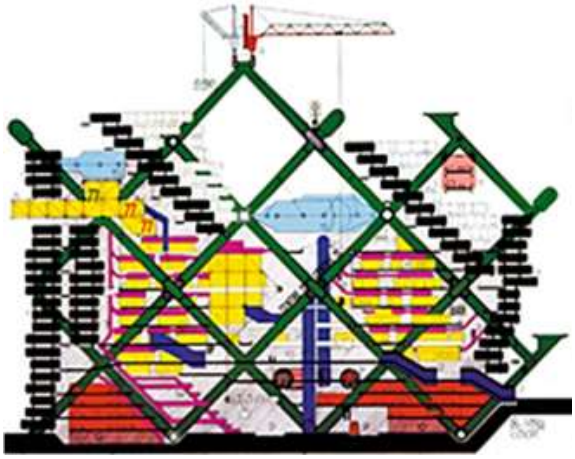

Fig. 2. Peter Cook, Plug-in City Study - Less Overhead View, 1964 [3]

Fig. 3. David Green, Archigram, Living Pod, 1965 by Mémoire2cité (Flickr)

III.3. The picturesque

Architecture needs picturesque, says Peter Cook, who criticizes modernism during one of this lately lecture "Towards The Non-Solid Architecture" and who oppose the medieval picturesque to the cold geometric shapes of modernist buildings. The Picturesque is the engine of the surprise, of the unexpected and of the freedom of expression, a common feature of all his creations, as his late example illustrated in fig. 4.

The weird and radical ideas of the group influenced the main architectural currents of the eighties and the nineties, mainly the hi-tech and deconstructivism, both picturesque in their essence.

Fig. 4. Kunsthaus Graz-Peter Cook (2003)

III.4. The lack of political militantism and the lack of immediate utility

In his same lecture, Peter Cook says that the Archigram philosophy is typical for the British "optimism-pessimism", somehow social involved but not quite, somehow community driven but not too much. As an immediate effect, the ideas of the group were not applicable to the imminent social use and their discourse was rather a-political, though critics point out that it was influenced by Lefebvre's Marxist approach. Ironically, the "right to the city" concepts are used also in the present to justify the leftist movements and the anti- system ideology of Jane Jacobs's supporters, so it's kind of hard to say if this influence is real.

Architecture promoted by this unusual group is a generator of ideas, an exercise of the mind, a substance for the dreams of generations of architects that followed, who embraced architecture for its endless imaginative possibilities, for its ability to change and provoke and not for its boring everyday products (also because in most of the cases, the militant architecture, the "green" approach, smart cities, the practical and reasonable neo-liberalism and the social-oriented movements produced a stylish, smart and dry architecture).

III.5. A sensibility for technology use and an engineering

The pipes and installations are visible, removable, they are connectors and cores of the future buildings. They are the moving parts that set cities in motion. The inflatable, the pneumatic, the plastic, the neon-lit spaces are the city's visual expression, while the entertainment and the ludic are the reasons for its existence. Cities can be assembled on site, get connected, put into use and removed with ease.

III.6. An unmistakable visual expression

The form of expression is the graphic novel, the collage, the isometric axonometric and the user manual illustration style. The bubble dialog box gets to be a material part of the visual aesthetic message and becomes a physical presence.

IV. THE ARTISTIC INFLUENCES

This charismatic avant-garde influenced a whole generation of tech-nerds and put its mark on the aesthetics and ideology of other architects and artists working in the field of visual arts. The group is not a lonely voice. It's influenced by the explosive creativity of its generation of artists, writers and architects, all visually attracted to plastic, neon, shine and artificial.

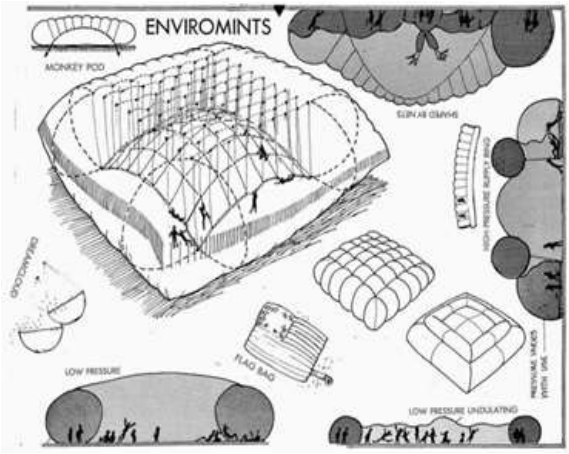

Fig. 5. Iinflatable buildings by Ant Farm

In 1971, the Group Ant Farm, specialized in pneumatic architecture, promotes the inflatable architecture, illustrated through some sort of "user manual" called "InflatoCookBook", which tries to find a more practical way of using the possibilities of pneumatic buildings, seeking new forms of assembling, manufacturing and use of plastic at an industrial scale. Their visual language is similar to the one used by Archigram

and they share the same enthusiasm for the versatility of the nomad architecture and the new aesthetics of polyethylene, which was according to its definition "impervious to moisture, lighter than water, tough, pliable. outstanding at dielectric high frequencies; excellent chemical resistance." [4]
In another example, William Gibson, the creator of cyber punk and virtual reality is influenced by the work of Philip K Dick.

Fig. 6. Syd Mead, Cityscape preliminary for Blade Runner

Ridley Scott's movie "Blade Runner" (1982), made after Philip K. Dick's novel "Do androids Dream of electric sheep?", published in 1968, takes place in a dystopic mega-city at a scale comparable to the ones imagined by Archigram. The city is created by Syd Mead, one of the Metal Hurlant Illustrators (an anthology of Sci-fi and horror created by Jean Giraud aka Moebius, Philippe Druillet and Jean Pierre Dionnet in 1974, all of them being influential artists, who were setting the standards for the visuals of the imaginary for the next decades and who shared the same timeline with the group) [5].
The dystopian mega-structures of "Blade Runner" influenced an entire generation of artists and will create the fantastic worlds of the "Matrix" and of "Ghost in the shell", both influenced by the colonial city imagery of Hong Kong [6, 7].
It is not hard to do a parallel between the farms of "human" batteries as seen in Matrix, the vertical farms of headless chickens proposed by Andre Ford and the group's "Plugin City " [8].
Talented architects, annoyed by the suffocating limitations of reality, have found their place in the magical world of movie scenography and in the creation of video games, creating the new tradition and the new purposes for the future dreamers and for the architects that will have to create the next "over-written world" of augmented reality.

V. "PRACTICAL" INFLUENCES

There were already many architects who were trying to use the inflatable structures. The experiments have failed one by one, because of the high cost of maintenance and the fact that materials tended to age brutally when exposed to sunlight, dust and weather. Their doubtful resistance, as well as their inability to be built in a modular way, made them unreliable, especially in the construction of the large buildings. On the other hand, their waterproof qualities, their low weight and the ability to define almost instantly an enclosed volume, made them useful, especially for sports arenas and a reliable solution for anybody who sought a viable and lightweight material.
Also, its freedom of expression has a good potential for a more personal architecture. A tough, environmentally resistant, self-sustained and reliable equivalent of polyethylene might offer a whole new spectrum of visual use and a new way of defining public spaces, streets and cities, as one seen in my own utopic example (Fig. 7). Same hypothesis applies to future inflatable and modular panels, made out of an ideal reliable and transparent material, able to produce green energy with the help of their incorporated solar panels, aging with grace and having the artificial beauty and sparkle of a brand new plastic made object.

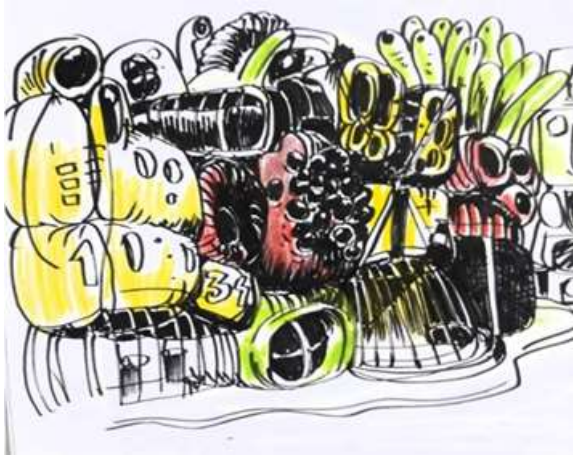

Fig.7. Inflatable street-author's contribution

The plastic has always been a material used to small-scale objects by engineers and designers. It's easy to understand the advantage of this light material, which can be poured in any form and difficult to overlook its quick way of getting opaque, scratched, yellowish and broken. Due to the fast development of the smartphone's industry and due to the persistent search for a solution to the problems raised by the mechanical resistance of these precious objects, there is not a long road till the production of a tough, cheap and transparent plastic who will maintain its visual qualities for a sufficiently long time.

Fig. 8. Mars colony inflatable house- author's contribution

The Archigram cities are difficult to be conceived as "friendly" in the real world. No normal man would choose, under normal circumstances, to live in some mega-structure's removable capsules, maintained in function by some gigantic crane arms, who would extract and replace it after its expiration date. Or to be trapped in the bubble of a colossal walking city. The ideas are completely unnatural, despite their soul-less beauty.

On the other hand, the hypothesis seems extremely viable when we refer to colonial cities of the future planetary explorations, to underwater cities and to the expansion of the countries with lack of physical surface and exceeding population.

The mobile individual bubbles and the portable houses seems childish, kitschy and very unrealistic solutions, but this logical judgement loose its strength when applied to refugee camps and to instant towns (provisional or not, Inflatable or not) which might arise at the edge of our current cities and which might become the nucleus, the visual model and the future history of some new emerging communities.

We are again in a situation that cannot be solved entirely by the use of modern language, as long as all the cities tends to look alike, due to comfortable use of the same verified solutions, applied over and over, leading to a strange clean and cold uniformity. The "picturesque" tends to be recovered by the new urbanistic movements, who are trying to mix styles and functions in order to recover a long forgotten "joie de vivre".

We are again in the sad situation of not being able to be represented by the visual paradigm of our time. Technology, video games and movies are generating new visual references, which are still far away from having their "physical" equivalent. The incredible speed of our time and the perpetual change of our visual arts is poorly reflected in architecture who, once again, is trying to solve its precedent generation issues, ignoring the sparkling and ludicrous present

That's why I've made some shy attempts of using the aesthetic of plastic, pneumatic and disposable possibilities in illustrating some „buildings" and "streets" inspired by the aesthetic of our video games (Fig. 9). Also being painfully aware by my personal creative limitations and by the boundaries of my own paradigm.

Fig. 9. inflatable house - author's contribution

Some new technological achievements bring into attention the possibility of using the ideas of the group.
The augmented reality and the haptic technology, which will develop the "over- writing" and customization of physical reality and the ability to touch virtual objects (with small and shy steps at this moment) .
The informational text bubbles of the augmented reality will tend to occupy the user's field of view (as in Archigram visuals) and they will tend to be part of the "REAL".
The real-world architecture will have to face the diminishing of its importance, as long as it will compete with the magical worlds of our smartphones and with the world of our CGI and 3D simulations. In the end, the real cities will tend to find their form of expression which will have to match the charm of our smartphone's colorful world.
It will also be interesting to see how the visual aesthetics of augmented reality, a controlled aesthetic environment, will manifest into the physical world, a world that already has its hard time competing with the "staged" reality with its perfect sunsets and lack of gravity.
The need for cheap habitable solutions (when there will be no longer need for a recognizable physical presence of our cities), will end up by seeking for answers in the area of avant-garde's consumerist and disposable utopia.
Robotics, because a tendency of the past years is the attempt to reduce the weight of the robots, using plastic and of the soft plastic "muscles" operated through smart hydraulic operating engines [9]. Although still present, anthropomorphic robots are just a rather unnecessary curiosity, while in the meantime, micro-robots and intelligent clouds of drones are both capable to create macro- modular objects and both to rearrange spaces or to become components of some very intelligent memory materials. Empowered by the new discovered neural networks (which ceased to be just a sci-fi speculation), they will able to transform physical spaces in real time and to modify the structures through a "soft" approach.
The exoskeleton, initially made as a solution for military purposes and for increasing the mobility of aged persons will bring some significant changes in the field of construction. Powerful institutes, as "Boston Dynamics" and their competitors from "Festo" (producers of robots which rely on mimicking of the biological movement), are about to completely change the future. Their creations are ephemeral beings, graceful and stylish, in the spirit of the objects designed by Archigram.
Colonization of Mars and the Arab world's migration, which brings up again, the problem of colonial cities, who should be made from disposable and light inhabitable units. One of the largest migration in history will need intelligent solutions in the attempt to integrate this huge mass of emigrants. The new cities could be the perfect place for experiment for new materials and new forms of visual expression.

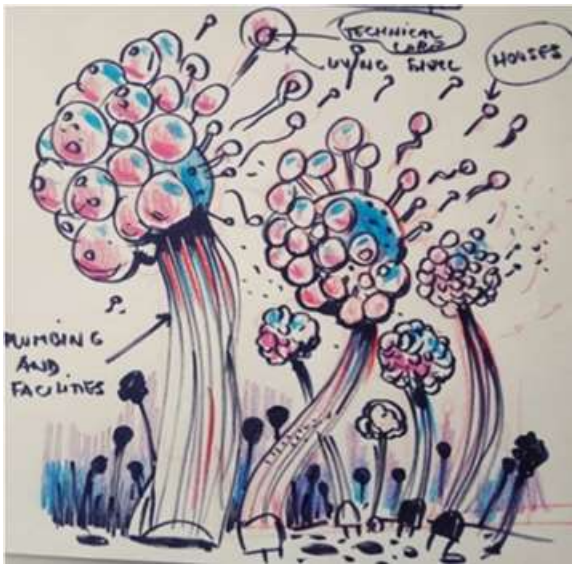

Fig.10. A colonial city and its drone modules - author's contribution

The expected one-ticket-travel to Mars will have to solve the problem of transporting material, who will have to be sufficient enough to build an entire city (with its own production facilities) and to fit in a very small space, due to spaceship carrying capacity. It will have to ensure the physical protection, the comfort and psychological barrier for the brave suicidal colonists of this bold expedition.
Again, the qualities of the inflatable buildings and of plastic will have to be reconsidered, same

as the use of the 3D printers, who will function with the materials found on site. The experience accumulated by the aesthetic of our former colonial cities, bathed in their bright neon lights, based on solutions to the conditions of a different gravity and to a different way of life, might lead to some strange colonial cities as one illustrated in (Fig. 10), a city made in the spirit of Archigram's legacy. Soft, replaceable capsules empowered by drones- like engines, floating in the thin air and plugging-in megastructures made for utilities, as surreal dandelions.

Or it may lead to strange printed-on-site and never-seen buildings, mobile, nomad and connectable (Fig. 8).

The use of 3D printing, which is evolving with baby steps and who will be able to make the construction of a house accessible to everyone, through use of some simple software programs and some customizable templates. It's not too hard to imagine that the residential districts will have their own " house-printers", which would be able to print and replace the house components or the house as a whole, in the spirit of the expandable architecture dreamed by Archigram. It is possible that the real economic stake will be the "ink" that fills the printers.

It is possible that everyone will have their dream houses, (Fig. 11), if only for just two weeks.

Fig. 11. Custom inflatable roof made with 3D printers- author's contribution

VI. CONCLUSIONS

Fifty-five years have passed since the last great utopia and now we are facing the same challenges although we own a different type of technology. By making a brief description of the context and by pointing at the main features of the group Archigram's ideas and aesthetics, this article tries to find some new use for their innovative and radical position.

REFERENCES

[1] Steiner, Hadas Anna. Bathrooms, bubbles and systems: Archigram and the landscapes of transience. Diss. Massachusetts Institute of Technology,

[2] Banham, Reyner: Zoom wave hits architecture. New society3.21 (1966): 1965-1973.

[3] Cook, Peter, Plug-in City Study, 1964. Courtesy of Archigram Archives.

[4] Lewallen, Constance, Steve Seid, and Chip Lord. Ant Farm, 1968-1978. Univ of California Press, 2004.

[5] Bruno Yuen, Wong Kin. "On the Edge of Spaces:" Blade Runner"," Ghost in the Shell", and Hong Kong's Cityscape." Science Fiction Studies (2000):1-21

[6] Gibson, W. (1984), Neuromancer, Ace Books, New York NY.

[7] Mazur, Dan, and Alexander Danner. Comics: A global history, 1968 to the present. London: Thames & Hudson, 2014.

[8] Brass, C., Bright, A., Scott, C., & Rayner, A. Chicken Run.

[9] Marchese, Andrew D., Cagdas D. Onal, and Daniela Rus. "Autonomous soft robotic fish capable of escape maneuvers using fluidic elastomer actuators." Soft Robotics 1.1 (2014): 75-87.