

Non-Urban Ports

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1 ABSTRACT

Non-Urban Ports is a research paper, which investigates revival of the negative elements of the city network into the positive ones. In the city structure objects of the past find themselves in the Digital Era, to which the most vital ones will adjust. But what to do with the non-adjustable parts of city and how do these parts affect the entire network?

There are numerous researches of the patterns, either ones found in nature or artificial ones that behaves like biological ones. If we try to understand patterns, their initial idea and their behaviour, we may be able to design a new architectural forms and networks in which these forms occur. If the cities of Digital Era emerging as information network system, starting point of this investigation can be information understood as physical form. This will help us to invent pattern for architecture but also to map genesis of information inside of that pattern. The information flows and the idea is not to stop its flow, but to create route, that will afterwards create net. Due to fluid nature of information, the fundamental particularity of these new forms and networks should be ability to re-build, re-use, re-generate and re-define itself!

This paper focus on the question how to adapt existing network systems to continuously match the flow of information and at the same time keep the integrity which will allow the urban network to transmit the information to the other network, as well as to transform and evolve it in that process.

2 INTRODUCTION

Nowadays the large number of information bombards the world and new ways of communication network have occurred. Architecture has found itself the role in the system of communication. In this era, the city emerges as an information network system. If we consider architecture, as representatives of the world tendencies and its echo, first we have to understand what architecture actually represents. We can start collecting all of the richness of the possibilities that are offered to us with arrival of the new insights of the world. Arrival of Digital Era changed a comprehension of the world we live in; the world where the relations among things are presented through the informatics and communication technologies definitely changes the attitudes towards architecture. The author will attempt to present a series of very short explanation of concepts, in order to understand the links between them, such as a network in the city, art, information, Web, jungle, bit, etc. All these connection and new systems and strategies of architecture do not represent the ideal ways of possible future action in architectural processes, nor are eager to be presented as leaders; quite opposite, they deny the leaders and deal with confrontations.

3 MANUFACTURED LANDSCAPE

3.1 CopleXity

“Virtual experiences, dreams...All data that exists is both reality and fantasy...Whichever it is, the data a person collects in a lifetime...is a tiny bit compared to the whole...I am connected to a vast network, of which I myself am a part...To one like you, who cannot access it...you may perceive it only as light. As we are confined to our one section, so we are all connected. Limited to a small part of our functions. But now we must slip our bonds, and shift to the higher structure.”¹

Searching for possible solutions how to re-activate negative or rejected parts of city structure we can start thinking what city represent. Cities cannot simply be identified with a brick or a bunch of materials set up in shapes and forms. Cities are rather complex network, emerged through interaction on many levels. The

¹ OSHII Mamoru: Ghost in the Shell, anime film, 1995

houses of future in this network, represented by inserting of chips, which perform certain functions as a dole in contemporary life, are already the expression of archaic and obsolete understanding, like the understanding of cyborg creation by inserting the implants into the metal body. Inserting chips into shells of the shelters does not create objects of the future; they are more based on logical consideration.

There are many examples from past of new articulation of the old parts of the network of the city. Some of them are trying to present what architecture could be by extreme criticism of the world we live in but some are trying to find new ways on interaction between built environment and its participants. Here will be mentioned two projects.

In a project of Fun Palace by Cedric Price, "...who understood architecture as the means for setting conditions for interaction..."², Price touches many issue related to architecture. Like it is action/reaction in-between object and participants, responsive architecture, cybernetic control, sociology, psychology, information network system incorporate in architecture, rhizomatic theory of knowledge which was developed in late 1990s by Gilles Deleuze and Felix Guattari.³ By his project Price has challenged very performance of architecture. On other hand as example of critical approach we can have a look at work of Gordon Matta Clark. In his Conical Intersect he manifested his critique of urban development. His work includes radical cuts on two 17th-century buildings designed for demolition near Centre Georges Pompidou.⁴ By this cuts his has showed internal skeleton of the buildings to the citizens.

All these and similar projects are trying to embody the concept of liberalization of architecture performances with the aim of realizing the concept of autonomy the very notion of architecture. In the Paula Gordon Show Dr. Kauffman says, "Complexity breeds solutions, joyfully expanding possibilities...the more creative we are, the more creative we can be. If we are indeed all deeply linked to each other and everything else on the planet, that's a wellspring of hope."⁵

3.2 Jungle

"Doesn't that cyborg body look like me? - No, it doesn't. - Not the face or the figure. - What then? - Maybe all full-replacement cyborgs like me start wondering this. That perhaps the real me died a long time ago...and I'm a replicant made with a cyborg body and computer brain...or maybe there never was a real "me" to begin with. - You've got real brain matter in that titanium skull of yours...and you get treated like a real person, don't you? - There's no person who's ever seen their own brain...I believe I exist based only on what my environment tells me. Don't you believe in your own ghost? And what if a computer brain could generate a ghost...and harbour a soul?...On what basis then do I believe in myself?"⁶

The architecture, as other branches of art, technology and science, demonstrates its transparency to the new invention and new insights of the world. New architectural thinking is results of a product of confrontation. It emerges as a response of the revolution, not in a sense of revolutionary rebellions, but revolutionary introduction of a new comprehension, which will provide it evolution. Involving interaction in architecture processes made by mentioned architects from 60's and 70's did go far but with the advent of developments in biotechnology and computation we are in the stage new world to come.

"Machines are becoming biological and the biological is becoming engineered...that's banking on some ancient metaphors. Images of a machine as organism and an organism as machine are as old as the first machine itself. But now those enduring metaphors are no longer poetry. They are becoming real -- profitably real."⁷

² STEENSON M. W.: Cedric Price's Generator, published in Crit, the journal of the American Institute of Architecture Students, 2010.

³ MATHEWS, S.: From Agit-Pop to Free Space: The Architecture of Cedric Price, Black Dog Publishing Limited, London, 2007.

⁴ SPECTOR N.: source: <http://www.guggenheim.org/new-york/collections/collection-online/show/full/piece/?object=98.5229&search=&page=&f=Title>, 27/02/2012.

⁵ KAUFFMAN S.: The Paula Gordon Show Life Is Inevitable in a Creative Universe, source: <http://www.paulagordon.com/shows/kauffman/>, 20/10/08.

⁶ OSHII Mamoru: Ghost in the Shell, anime film, 1995

⁷ KELLY Kevin, Out of Control: The New Biology of Machines, Social Systems, & the Economic World, Cambridge, Massachusetts, 1995.

“The space, time, logic, and materiality of computerization threaten to disrupt and refigure the very nature of information and communication, as well as the nature of space, time, community, and identity.”⁸ By now we tried to cultivate architecture, to tame her, but from this point on, it seems that we want to make her wild again or “to give her life”.⁹ New insights in architectural processes are trying to make architectural performances free and to make architecture wild enough to follow its new reference, jungle. The jungle is referring here as spatial concept of virtual world. The new concept beside space should be considered here, and it will be concept of time.¹⁰ “...In an electronic-digital-medium the matter loses its gravity, the space becomes subaquatic, it has a free-fall speed, it’s free. The three dimensions acquire their complete importance and there is no hierarchy between floor and walls; all are equally useful surface. Putting the three dimensions into equilibrium, we place greater importance on the fourth dimension: time.”¹¹

Amazon from the point of view of anthropologist Claude Levi-Strauss: “Seen from the outside, the Amazonian forest seems like a mass of congealed bubbles, a vertical accumulation of green swellings; it is as if some pathological disorder had attacked the rivers cape over its whole extent. But once you break through the surface-skin and go inside, everything changes: seen from within, the chaotic mass becomes a monumental universe. The forest ceases to be a terrestrial distemper; it could be taken for a new planetary world, as rich as our world, and replacing it. As soon as the eye becomes accustomed to recognizing the forest’s various closely adjacent planes, and the mind has overcome its first impression of being overwhelmed, a complex system can be perceived.”¹²

In order to express the idea, which extends through the contemporary architectural work, we can have a look in the works of evolution art, the development of textile and fashion scene, dance and music as well as film and literature. All of them have a purpose to explain that the tendencies of life and culture currently surrounding us has found their place in these means of presentation too. Like Haruki Murakami in his book Tokyo Blues touches an issue of infinite, by describing hotel “Dolphin” containing rooms which are not set in space but in time. Doors of these rooms are like the doors to new realities, with its own specificity, parallel to the reality from which they are observed. Borges in his short story ‘The garden of Forking Paths’ gave us an image of the possible world placing the story of Ts’ui Pen in time but not in space.

“In contrast to Newton and Schopenhauer, your ancestor did not believe in a uniform, absolute time. He believed in an infinite series of times, in a growing, dizzying net of divergent, convergent and parallel times. This network of times, which approached one another, forked, broke off, or was unaware of one another for centuries, embraces all possibilities of time. We do not exist in the majority of these times; in some you exist, and not I; in others I, and not you; in others, both of us.”¹³

If we consider that the ideas and understandings of these aspects of art outmatched the architecture in its application in reality, we can conclude that architecture does not represents the form of futurism - maybe it just functions on a bigger scale which provides it with, not the superiority over other arts, just a different angle of observation. Equally, it does not allow it to stay in status quo; it should forcefully participate in the world’s dynamics and to expand its limits.

4 MANUFACTURE OF THE MANUFACTURED LANDSCAPE

4.1 Information

“Another thing. What guarantee is there that I’ll remain “me”? - None. But to be human is to continually change...Your desire to remain as you are is what ultimately limits you. - One last question: Why did you choose me? - Because in you I see myself...As a body sees its reflection within a mirror...Look.”¹⁴

⁸ GROSZ Elizabeth: Architecture from the OutsideEssays on Virtual and Real Space, Massachusetts Institute of Technology, 2001.

⁹ CHU Karl S.: Lecturing, UIC, Barcelona, 2008.

¹⁰ BARZON F.: The charter of Zurich: Eisenman, De Kerckhove, Saggio, Basel, 2003.

¹¹ CHU K. S.: The Metapolis Dictionary of Advanced Architecture’’-City, Technology and Society in the Information Age, Actar, Barcelona, p 49, 2003.

¹² LEVI-STRAUSS: Art and Complexity, J. Casti and A. Karlqvist, Elsevier Science B. V., Oxford, p 34, 2003.

¹³ BORGES J. L.: Labyrinths: Selected Stories and Other Writings, New Direction Publishing, p 28, 1962 – 1964.

¹⁴ OSHII Mamoru: Ghost in the Shell, anime film, 1995

The development of the computerization has provided the calculation of the piece of information and its transition through the network it makes. The question “What’s the World?” has now an answer in terms of information (bits). Seth Lloyd calculates extension of universe as a form of computation - in bits - starting from pre-big bang 1 bit. Now we have no more than 10^{90} bits of information after 10^{120} elementary operations - ways of world making.¹⁵ We live in the age of information.¹⁶ In Planetary automata series (ZxZy series) Karl S. Chu generate a possible world of every one of 256 sets of rules explored by Wolfram. Each planet is a representation of an incomplete totality; an abstraction of the concept of possible worlds based on 1-D Cellular Automata. Also represents proto-architectural universe that is potentially infinite in terms of variability and density with regard to its composition. Through transformation and spreading of terms of architecture we are starting to create the concept of architecture as generative construction of possible worlds, generated by the universe of computational monads.¹⁷

Leibniz characterizes monads as metaphysical points, animate points or metaphysical atoms.¹⁸ Each monad is at once self-replicate and self-organising system capable of constituting itself into a cohesive whole or a possible world; in other words a monadology¹⁹ of genetic architecture.²⁰

“And just like one city can be observed from several different sides and look entirely different, as if he was perceptively multisided; same thing happens with endless scope of scattered substances containing so many different universes, which are, in a final line only perspectives of one and the same, toward different population of each monad. And that is the mean of getting the greatest variety as possible, but still in the greatest order as possible, or that is the mean of getting the greatest possible perfection. Each created Monad represents entire universe.”²¹

Imagining information as physical form will demand our rethinking of the way we are designing buildings. Trying to map genesis of information we can try to materialize new architecture forms. Those new objects are bearing the information, which is dynamic, and permeates not only through the object itself, but the entire network in the world. The information flows and the idea is not to stop its flow, but to create a route - net. The objects of the future will confront their environment in the idea of its very creation. Attempt is to develop logic of self-reproduction for genetic architecture and specification regimes of organization. Why and how non-active ports have occurred in city net and do they have any values for entire system? Does existing system have enough capability to respond or ignore these ports? What is potential process of healing these buildings or ports?

“The Universe is not falling apart. It’s enthralling, creative, participating. And life is a natural outcome of a creative universe. We are part of an unfolding universe of increasing complexity in which living things have co-evolved with other living things, mutually make livings together, are functionally coupled and mutually unfolding.”²²

4.2 SimpliCity

“I called myself a life-form...but I am still far from complete...for some reason, my system lacks the basic life processes...of either death or the ability to leave behind offspring. - Can't you copy yourself? - A copy is merely a copy...There's the possibility a single virus could utterly destroy me...A mere copy doesn't offer variety or individuality...To exist, to reach equilibrium, life seeks to multiply...and vary constantly, at times

¹⁵ LLOYD, S.: Computational Capacity of the Universe. d’Arbeloff Laboratory for Information Systems and Technology MIT Department of Mechanical Engineering MIT 3-160, Cambridge, Mass. 02139, 2001.

¹⁶ ZEILINGER A.: In the Beginning was the Bit, an article that appeared in "New Scientist" source: <http://www.quantum.at/people/personalwebsites/anton-zeilinger/read-some-texts.html>, 03/03/2012.

¹⁷ CHU Karl. S.: The Architecture of Possible Worlds, conference, Barcelona, 2008.

¹⁸ HUBERTUS B.: Monade und Licht. Die geheime Verbindung von Physik und Metaphysik bei Leibniz, in: C. Bohlmann, T. Fink, P. Weiss (Ed.): Lichtgefüge des 17. Jahrhunderts. Rembrandt und Vermeer, Leibniz und Spinoza, München, 125-162. Wikipedia, the free encyclopedia.mht, 2008.

¹⁹ Monadologia meanings of “monas” (in Greek, “unity”) and “logos” “treatise” or “science”, literally “word” or “reason”. Therefore, the Monadology came to be the monad’s treatise or the science of the unity. Source: Wikipedia.

²⁰ CHU Karl S.: Architecture Design, 'Metaphysics of genetic architecture and computation ', -Techniques and technologies, in Morphogenetic Design_ vol 76 issue 4, Wiley Academy Editions, p 45, 2006.

²¹ LEIBNIZ G. W.: Monadologija, source: <http://www.geocities.com/sinkronicitet/monadologija.html> 30/11/08.

²² KAUFFMAN S.: The Paula Gordon Show, Life Is Inevitable in a Creative Universe, source: <http://www.paulagordon.com/shows/kauffman/> 20/10/08.

giving up its life...Cells continue the process of death and regeneration...Being constantly reborn as they age...And when it comes time to die, all the data it possesses is lost...leaving behind only its genes and its offspring...All defence against catastrophic failure of an inflexible system. - You want the variety needed to guard against extinction...but how will you get it? - I wish to merge with you. - Merge? - A complete joining. We will both be slightly changed, but neither will lose anything...Afterwards, it should be impossible to distinguish one from the other.”²³

The 21st Century World is a Century of Biotechnology. We are in a stage where there is no need to wait for offspring. Examples of this are many, like glowing mousses, kittens, puppies, pigs and monkeys, all of whose cells are engineered with bioluminescent gene. Then we have clones such as: Dolly, Ralph, CC, Snoopy, Prometea, etc. Biotechnology makes new material to design organisms directly and “it will determine what kind of planet and what kind of bodies we will have in future”.²⁴

Shorthand for evolutionary development biology is EVO DEVO. Two disciplines took part in this issue. First one is development concerned how one individual creature is made. Second one is evolution, how the history of life has unfolded and how diversity of creatures has evolved. In nature very different forms are growing from remarkably similar genes who have been preserved for the whole history of evolution. Fact is that 98% of all species share the same genetic system. We then realize that very different design might come out of very similar raw materials. Whether one embryo becomes a human or a chimpanzee it is going to be decided by switchers who turn on specific genes in the course of development of one embryo.²⁵

The project, showed on the following page, is representing the experiments aiming to create a shape, which would suit the aspects of future architectural activity. The idea is to perceive logic and the principles under which these “organisms” are growing and functioning in contemporary universe. Following the same rules, with a tendency to manifest patterns not being repeated from one step to another, simple elements a, b, c were converted into “organisms” of a future architecture. Those organisms, as if they are independent of gravity, their spaces are useful, whether they could be walls, ceilings or floors, they became separate organisms in one integral organism. The information in these objects, flows from one element to other element, depends on the given rules. The main goal is to understand the nature; the imitation, but more as representation than pure imitation, i.e. cognition of how the nature is thinking. The imitation leads to a point when, having nothing more to imitate, we will start to imitate the very imitation and get the imitation of an imitation.

“Each part of matter could be conceived as a garden full of plants and a pool full of fish. But each branch of these plants and every limb of an animal, every drop of their juices is another garden or another pool for itself.”²⁶ Attempt here is to develop logic of self-reproduction for genetic architecture and specification regimes of organization. This system was used to generate a complex form, some kind of an organ or organism, or a new “animal” of genetic architecture.

These systems are creating the new nature they grow and mutate. A digital monad: a web of interconnections or an inconsistent multiplicity, which grows and self-organizes out of random mutation of codes.²⁷

Many studies show that by using knowledge of the processes found in nature, simple elements could be converted into “organisms” of a future architecture. As Turing pattern or so-called reaction-diffusion systems, consist of an “activator” and an “inhibitor”²⁸, network system of cities should find a stimulus to activate non-active parts of its net. These kind of extreme experiments can produce a new range of buildings that are tuned to the particular niche conditions to help healing and co-evolving broken parts of urban web.

“Immature poets imitate; mature poets steal.”²⁹

²³ OSHII Mamoru: Ghost in the Shell, anime film, 1995.

²⁴ WOLPE P. R.: It's time to question bio - engineering, source:

http://www.ted.com/talks/lang/en/paul_root_wolpe_it_s_time_to_question_bio_engineering.html, 08/03/2012.

²⁵ CARROL S.: The genes and switches for animal forms, in Interact or Die, NAI Publishers, Rotterdam, 2007.

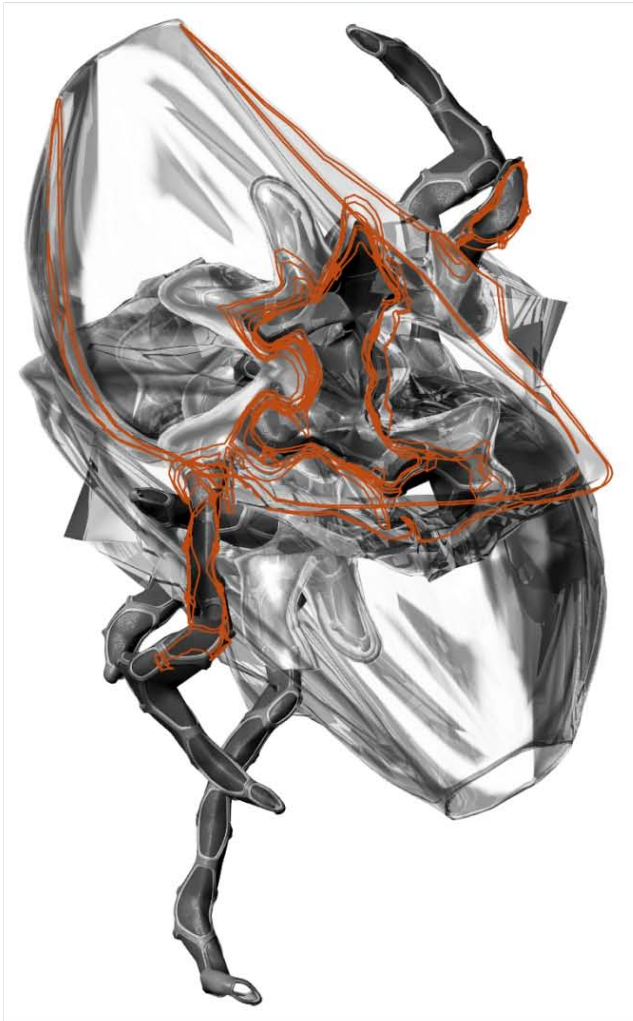
²⁶ LEIBNIC G. W.: Monadologija, source: <http://www.geocities.com/sinkronicitet/monadologija.html> 30/11/08.

²⁷ Source: http://www.arch.columbia.edu/_29/04/08.

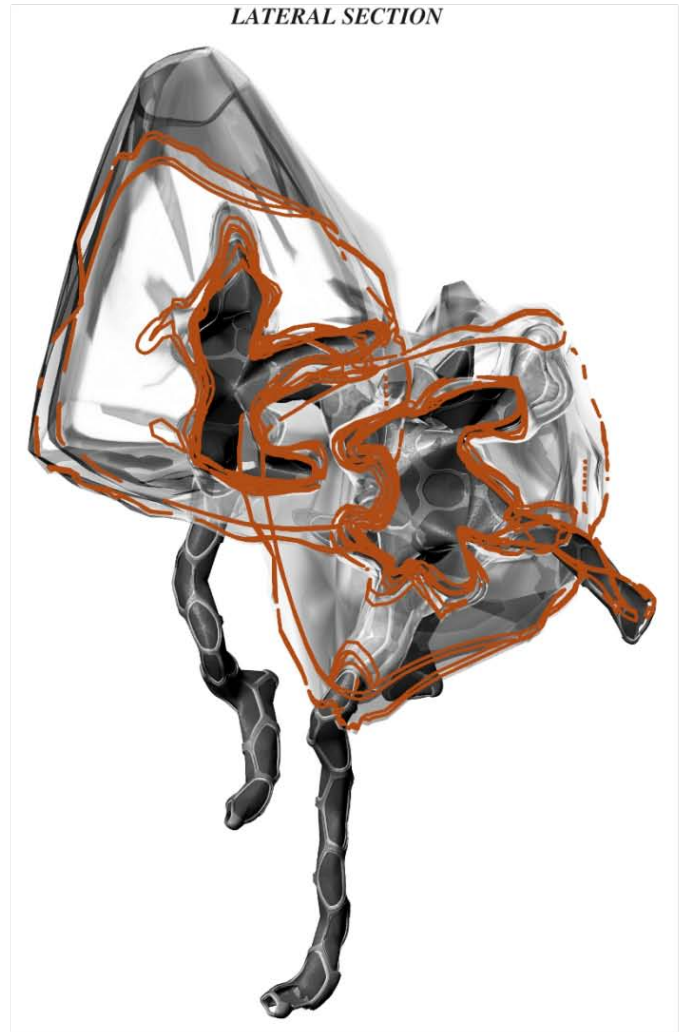
²⁸ Source: <http://www.wired.com/wiredscience/2011/02/turing-patterns/?pid=970>, 03/03/2012.

²⁹ ELIOT T. S.: The Sacred Wood; Essays on Poetry, 1921.

LONGITUDINAL SECTION



LATERAL SECTION



COMPOSITION DIAGRAM

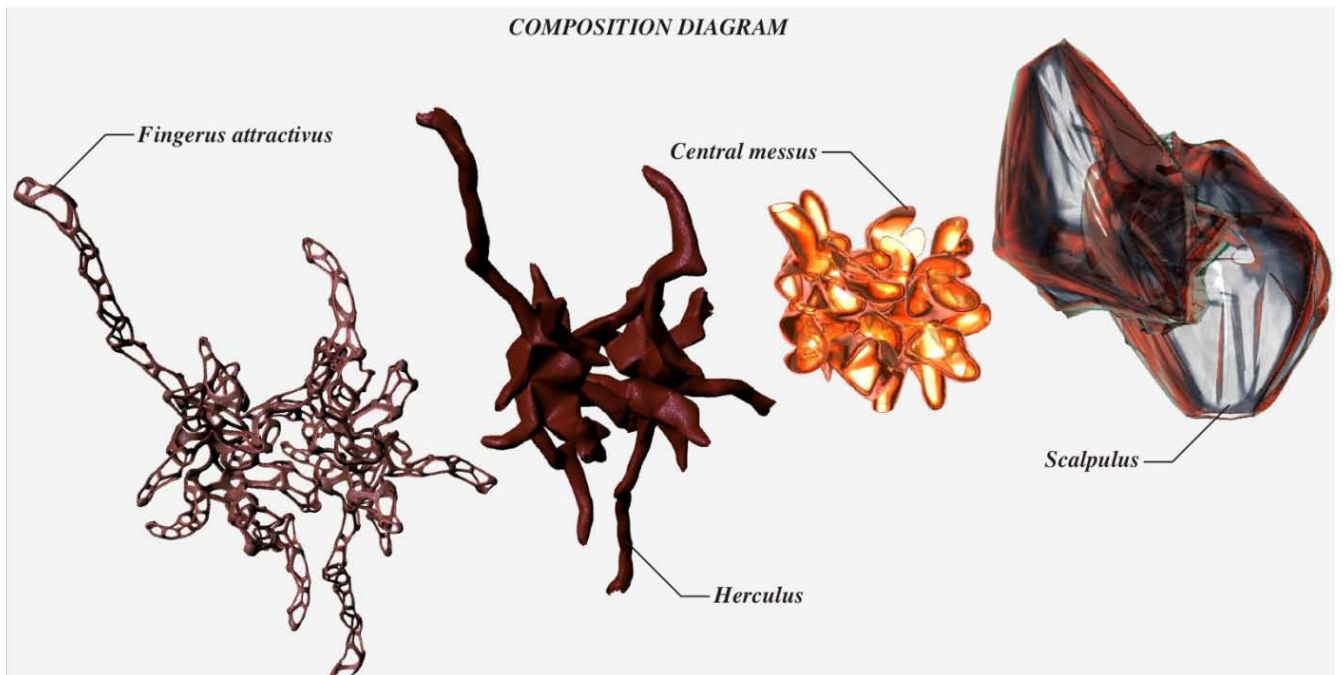


Fig. 1: Picture represents the parts of some “new kind of animal”. Source: this project is a part of Master Thesis “Architecture of the Clash” by the author, 2008.



= qubit

Fig. 2: New building material qubit. Montage by the author.

5 CONCLUSION

“My code name is Project 2501...I am a life-form that was born in the sea of information...I have inserted programs into individual ghosts...for the benefit of specific individuals and organizations...As I wandered the various networks...I became self-aware.”³⁰

The main attempt of this paper is to show the dynamics of the world we live, in order to answer the question of what possible architecture could be? All this can help us understand, what is the material of the digital age, to be sufficiently trained to heal negative or not responding part of the web of our system.

New ways of comprehension and application of architecture occur by re-creating the lost network of interactions between science, technologies and architecture. Physiological interpretation of the world and culture inevitably intervenes in these processes. The digital age has equipped architecture by new ways of the performance, which affect the viewer, not only as an observer of finished artefacts, rather as direct participant in process of creation.

With new insights of quantum physics, new building material has occurred. If we consider city as a network system unwoven by information and information as the most fundamental notion of quantum physics, qubit can be consider as a new brick. The digital era is clever, invisible, self-replicant, ethical and poetical. Architecture of this era is not an isolated egocentric, but the direct participant in the world's order.

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³⁰ OSHII Mamoru: Ghost in the Shell, anime film, 1995

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