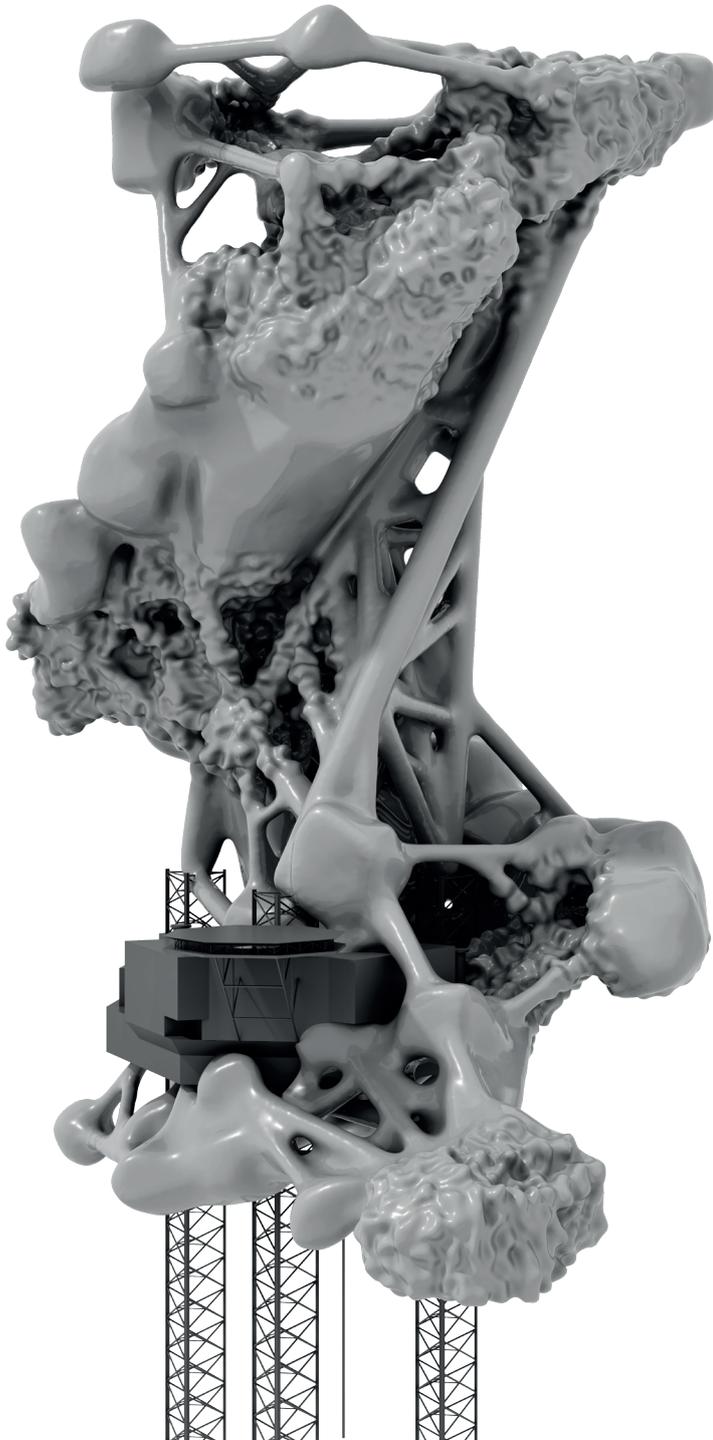


# RUNNING OUT OF GAS ON THE FAST LANE

## Utopia versus Dystopia



// fig. 01 // Elevation ROOGOTFL

*Name*  
*University*  
*Program*  
*Student ID*  
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We are living in a wonderful time - dangerous and unstable, yet fantastic. We are surrounded by seemingly endless possibilities and technological advancements that no one could have ever imagined decades ago. However, our world and our lives are threatened by non-human reactions caused by human developments and reckless actions now and in the past. How are we going to face our future?

*“Komm in mein Boot  
Die Sehnsucht wird  
Der Steuermann”<sup>1 2</sup>*

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<sup>1</sup> Lindemann, Till. “Seemann.” By Oliver Riedel. Rec. 24 Sept. 1995. *Herzeleid*. Rammstein. Jacob Hellner, Carl-Michael Herlöfsson, 1995. CD.

<sup>2</sup> Join me in my boat/the longing becomes/the helmsman (translation by the author).

## THE PAST

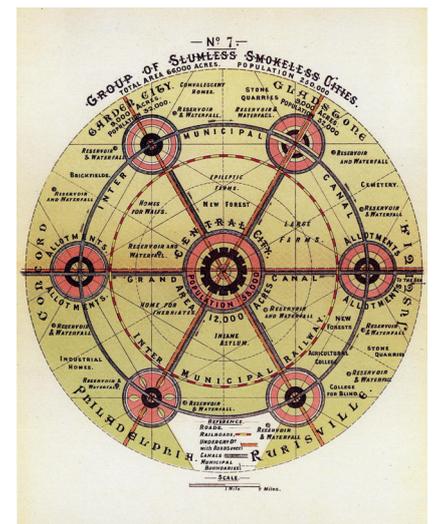
The question is not whether we are approaching or moving away from a utopian world. “Many would today regard the present as the best so far attained”<sup>3</sup> while others would state that “in a world of autocracy, fanaticism and terrorism, it [utopia] seems as far from reality as ever.”<sup>4</sup> It is undeniable that our society is facing threats, that continue dragging us deeper into dystopia. There appears to be a fine line between dystopia and utopia, as history has shown us, which is often overstepped in one direction or another.

The idea of utopia is as old as the history of mankind. Throughout the ages in all countries, certain motifs guided civilizations towards striving for a ‘better’ life: “The concept of utopia [...] is some variation on an ideal present, an ideal past and an ideal future, and the relation between the three.”<sup>5</sup> In the Classical Age, utopia was founded on God’s myths, whereas Christianity is built on the belief of the Garden of Eden, Heaven and Hell. Analogies and variations can also be found in other religions, such as Hinduism, Buddhism, Taoism, Islam, et cetera. The English Renaissance scholar and humanist Thomas More (1477-1535) published in 1516 his well known work *Utopia* // fig. 02 //. “The very title of the work was a pun on two words: *eutopia*, ‘good place’ and *utopia*, ‘no place’ [...]. [T]he word ‘utopia’ has [since] become synonymous with paradise, the ideal, the unrealistic and unattainable. [...] But the tradition [...] in fact represents not the perfect society, only a radically improved one.”<sup>6</sup> In More’s book, the foreign island Utopia is described as a place where people live under a certain ruleset in harmony, in a state based on friendship and respect to humans and nature. Inhabitants have to work to supply the cities with goods, however pleasure is an important factor of the Utopian’s wellbeing. The term ‘equality’ and the final achievement of justice and happiness must be underpinned. In addition to More’s idea of an idealistic state and human life, myths and metaphorical pictures from history are “rich in suggestion, in ambiguity, pointing towards doubt, but also towards promise, hope and faith.”<sup>7</sup> Scholars have tried to find the formula for utopia, to define the exact definition of how to pursue happiness and freedom. Perhaps, it does not exist– the concept of utopia could be more of an unsolid or vague ideal guideline towards a fulfilled life. In fact, utopian ideas often failed, because “without hope of individual gain, men will become lazy.”<sup>8</sup> Prominent examples of intentional communities include the Shakers and the Mormons in the United States, the Kibbutz collective in Israel, and the Hippie movement in the 1960’s. Famous utopian urban ideas were presented by Claude-Nicolas Ledoux’s *Chaux*, Ebenezer Howard’s *Garden Cities of To-morrow* // fig. 03 //, Le Corbusier’s urban redesigns and human versus machine thoughts, and Constant Nieuwenhuys’ *New Babylon*.

The conceptual and theoretical architectural work of the visionary group *Archigram* in the 1960’s and 70’s builds on the aforementioned ideas of a utopian society. As architects, it was not their intention to change the fundamental political and economic pillars of their societies, but to provide soil for new thoughts. “Impacted by the arrival of the “mass consumer age”, the “space age” and the “information age”, *Archigram* advocated responding with new thought, because the “immutable laws” of existing architecture were already insufficient to respond to the demands of the new age. With the constant introduction of new science and technology, they advocated applying it in an integrated fashion to the future design of cities and urban life.”<sup>9</sup>



// fig. 02 // Illustration First Edition Utopia



// fig. 03 // E. Howard - Diagram No. 7

<sup>3</sup> Claeyns, Gregory. *Searching for Utopia: The History of an Idea*. Thames and Hudson, 2011. p. 7.

<sup>4</sup> Robinson, Andrew. “Forgotten Utopia.” *New Scientist*, vol. 231, no. 3091, 17 Sept. 2016, p. 31.

<sup>5</sup> Claeyns. p. 7.

<sup>6</sup> Claeyns. p. 59.

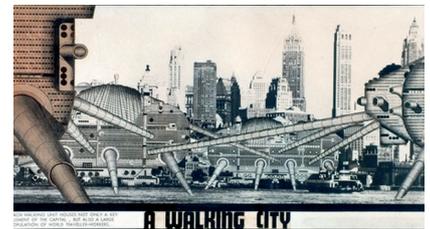
<sup>7</sup> Claeyns. p. 69.

<sup>8</sup> Claeyns. p. 67.

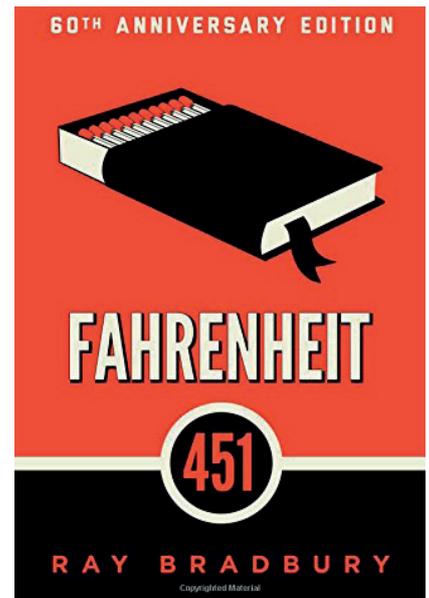
<sup>9</sup> Crompton, Dennis, and Huang Tsai-lang. “Foreword.” *A Guide to Archigram 1961-74: = Jian Zhu Dian Xun Zhi Nan 1961-74: Liu Shi Nian Dai Jian Zhu Ci Tuan Ti*. Garden City Pub., 2003. p. 19.

In their avant-garde concepts the *Walking City* // fig. 04 //, the *Plug-in City* and the *Living Pod* they desired “to discover their vision of a sophisticated humanity and refined technology working in harmony to make a better world.”<sup>10</sup> In 1963, it was Peter Cook who criticized the urban planning and re-creation of the environment as a “jaded process, having to do only with densities, allocations of space, fulfilment of regulations: the spirit of cities is lost in the process.”<sup>11</sup> Despite critiques that would state that *Archigram* only focuses on the architectural experiment itself rather than on its influence is incorrect. A high priority was to achieve the ultimate goal, the Garden of Eden on earth embedded in an increasingly developing and digitalizing world instead of an “automated wasteland inhabited only by computers and robots.”<sup>12</sup> The avant-garde group was clearly working towards a “liberat[ion] from the restrictions imposed on them [the people] by the existing chaotic situation”<sup>13</sup> in the cities and architecture itself.

The famous dystopian novel *Fahrenheit 451* by the American writer Ray Bradbury deals with a future scenario, where society is completely dependant on technologies and life in dull conformism // fig. 05 //. Reading books is strictly forbidden, and even the original intention of firemen is abused in order to burn said prohibited books. Inhabitants follow pointless rules, complete the same tasks everyday, and live a predetermined and boring life. Social activities only happen in a virtual cyberspace and moods would be stimulated with chemical drugs. “The living-room; what a good job of labelling that was now. No matter when he [Guy Montag, protagonist] came in, the walls [large TV walls, which are used for virtual conversations] were always talking to Mildred [the protagonist’s wife].”<sup>14</sup> Montag, unlike the millions of others, tries to have serious conversations with his wife over and over again, however it seems to be impossible: either she is drugged on pills or completely distracted by loud virtual, unrelated ‘aunts’ and ‘cousins’ on the walls or intense noises like “with electronic bees [plugged in both ears] that were humming the hour away.”<sup>15</sup> This book was written in 1953.



// fig. 04 // Archigram - A Walking City



// fig. 05 // R. Bradbury - Fahrenheit 451

<sup>10</sup> Crompton, Dennis. *A Guide to Archigram 1961-74: = Jian Zhu Dian Xun Zhi Nan 1961-74: Liu Shi Nian Dai Jian Zhu Ci Tuan Ti*. Garden City Pub., 2003. Back Annotation.

<sup>11</sup> Crompton, Dennis, and Peter Cook. “Introduction - The Living City.” *A Guide to Archigram 1961-74: = Jian Zhu Dian Xun Zhi Nan 1961-74: Liu Shi Nian Dai Jian Zhu Ci Tuan Ti*. Garden City Pub., 2003. p. 76.

<sup>12</sup> Crompton, Dennis, and Warren Chalk. “Housing as a Consumer Product.” *A Guide to Archigram 1961-74: = Jian Zhu Dian Xun Zhi Nan 1961-74: Liu Shi Nian Dai Jian Zhu Ci Tuan Ti*. Garden City Pub., 2003. p. 92.

<sup>13</sup> *ibid.*

<sup>14</sup> Bradbury, Ray. *Fahrenheit 451: Fahrenheit 451 - the Temperature of Which Book Paper Catches Fire and Burns*. Cornelsen, 2014. p. 43.

<sup>15</sup> Bradbury. p. 21.

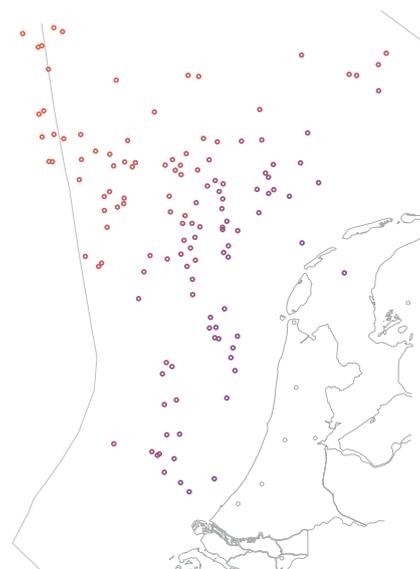
## THE PRESENT

There are three major threats today: first, global warming caused mainly by fossil fuels; second, the disastrous accelerated destruction of our planet through the impact of the oil and gas industry; and third, the new opium for the people: mass technologies.

Humans are facing the dangerous consequences of climate change. According to the scientist James Hansen, we expose our planet to 400,000 nuclear bombs worth of energy, equal to the one used in Hiroshima – every day, 365 days a year.<sup>16</sup> This unbelievably high amount of energy, which is mostly generated by fossil fuels, heats up the poles. The lack of area absorbing the sun sets off a chain reaction of further heating up the oceans, and destroying our climate.

Through modernization and industrialization, an increasing amount of energy is needed. Oil and gas fields are the most efficient, but a destructive way to create energy. Fueled by money and power, the unfortunate reality is that no consideration to the consequences of this ongoing, ruthless exploitation of our shared planet has been given. In addition to these negative effects to our atmosphere, the harvesting of this black gold has led to another victim. Many platforms and rigs in the oceans can be found in rich areas all over the planet. After an oil or gas field has been exhausted, new fields are found elsewhere and modern supporting structures are built, while the former ones are left behind. According to an Ernst & Young analysis from 2015, “17 exploration drillings and 4 appraisal drillings were conducted in the Netherlands”<sup>17</sup>. At the same time, 190 offshore structures<sup>18</sup> can be found in the Dutch territory in the North Sea // fig. 06 //. Some are passive or abandoned, and others will be sharing the same fate soon once the oil and gas fields they sit on top of are exhausted. These highly sophisticated and extremely expensive platforms leave massive scars on our fragile planet.

Society is facing another threat – technology addiction. This technological super drug is creating a dangerous social brainwash with dramatic consequences. An example of this can be found with the most recent US election, where people were misled by #fakenews on so called ‘social’ networks. Socially, we are already on a very dystopian path, made possible by our addiction to recent mass technologies // fig. 07 //.



// fig. 06 // Map Platform Positions



// fig. 07 // Banksy - Mobile Lovers

<sup>16</sup> Hansen, James. “Why I Must Speak out about Climate Change.” TED2012. TED Talks, Feb. 2012, Long Beach, California.

<sup>17</sup> “Dutch Oilfield Services Analysis 2015.” *Ernst & Young*, 2016, [www.ey.com/Publication/vwLUAs-sets/EY-dutch-oilfield-services-analysis-2015/\\$FILE/EY-dutch-oilfield-services-analysis-2015.pdf](http://www.ey.com/Publication/vwLUAs-sets/EY-dutch-oilfield-services-analysis-2015/$FILE/EY-dutch-oilfield-services-analysis-2015.pdf). p. 31.

<sup>18</sup> Ministerie van Economische Zaken, “Delfstoffen En Aardwarmte in Nederland - Jaarverslag 2015.” July 2015. [www.nlog.nl/jaarverslagen](http://www.nlog.nl/jaarverslagen). p. 135-139.

## THE FUTURE

The project *Running Out Of Gas On The Fast Lane*<sup>19</sup> (ROOGOTFL) weaves the aforementioned ideas and ideologies into an architectural concept. It focusses on establishing solutions for the described dystopian scenario, while trying to use cutting edge technologies for social good and environmental sustainability.

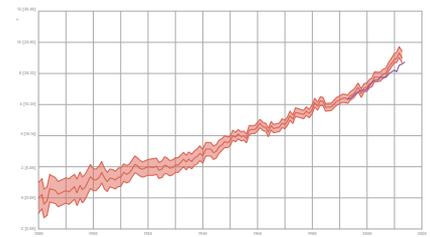
Eventually either the oil and gas supply will be exhausted, or society will develop methods to rely completely on eco-friendly energy sources. What will then happen to the oil industry and their factories and structures? Simultaneously, global warming has led to rising sea levels. Around 50% of the Netherlands is less than 1m above sea level<sup>20</sup>, which would result in massive flooding issues if sea levels rise a small amount // fig. 08 //. The loss of building and living area would result in drastic changes to the means of life. We need to research possibilities to decelerate the process, and also change our way of life. However, we must also look for concepts and design proposals to support a lifestyle with radical climate changes. This schematic design illustrates a visualized idea of a different, futuristic life, that deals with recent climatic, demographic, and social developments.

In this hypothetical situation, offshore drilling rigs made of billions of euros worth of steel and concrete will need to be repurposed // fig. 09 //. They provide society with the opportunity to create new land for living. With the concept of ROOGOTFL novel urban networks will be created in a space that has been to this point not considered for that purpose.

The developed map with all structures in the Dutch part of the North Sea illustrates the density and the number of platforms and rigs, some in a passive or soon to be passive state // fig. 10 //. These positions were evaluated with self-written algorithms according to position, prominence, importance, and distance. Two facts are striking: a) the proximity to the shore of some platforms, and b) the close distance offshore between the platforms. With those factors in mind natural growing networks are created. These are often quite denser than the network of the *Randstad* concept in the Netherlands. Another algorithm is used to distribute essential functions on each platform, so that already selected platforms are marked with special functions, such as living, leisure, entertainment and sports, green energy, food, distribution, work, and so on. One prominent island is then picked to elaborate further and define a more specific percentage of crucial functions.

These percentages are then translated into volumes related to the size of that platform. With swarm intelligence the functions are distributed in an optimized way in a predefined bounding box volume // fig. 11 //. Each agent of the swarm carries a defined volume and an exact task: e.g. energy swarm agents try to avoid the rest of the group and seek sunny parts of the volume, whereas living swarms try to cluster in smaller groups and find the most optimal light and viewing conditions. Work swarm members want to cluster to even bigger groups and try to find an optimal position between all the functions. The ruleset is based on many more rules and priorities, which in the end results in a complex and logical distribution of the basic functions. It is important to know, that the architect is fully in charge of the behavior of a flocking system; they define the rules, so they know what to expect. The machine is just a tool for complex calculations, the “parametric input [is] imposed on the swarm from outside the design system.”<sup>21</sup>

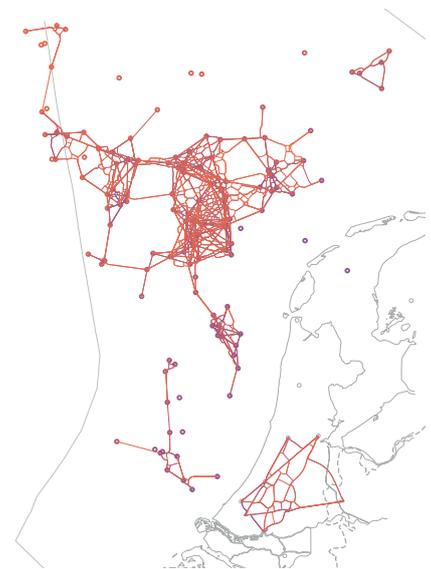
At a certain point of time, the swarm simulation is stopped and frozen. This hovering accumulation of spheres representing the volume needed for each function,



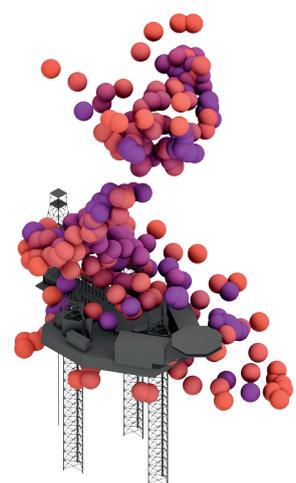
// fig. 08 // Sea Level Rise since 1880



// fig. 09 // Platform Q13a-A



// fig. 10 // Map Networks North Sea



// fig. 11 // Swarm Simulation

<sup>19</sup> Perl, Yeshe. “Romeo and Juliet.” By Perl Cooley. Rec. 31 Oct. 2006. *Mickey Avalon*. Mickey Avalon. Cisco Adler, 2006. CD.

<sup>20</sup> “Interesting Facts about the Netherlands.” *Eupedia*, 2012, [www.eupedia.com/netherlands/trivia.shtml](http://www.eupedia.com/netherlands/trivia.shtml).

<sup>21</sup> Oosterhuis, Kas. *Towards a New Kind of Building. ; A Designers Guide for Non-Standard Architecture*. NAI Uitgevers / Publishers Stichting, 2011. p. 162.

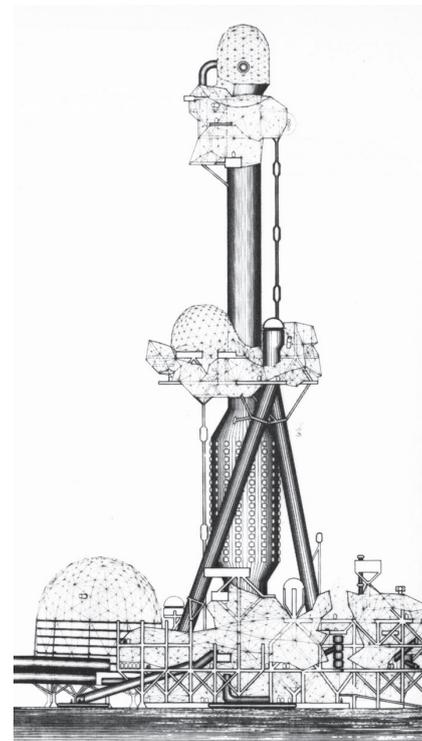
is then connected with simple pipes. The pipes vary in size according to length and priority of the connecting functions. The exoskeleton of this pipe network has two main purposes: first, to create a smart infrastructure between all the functions, and second, to add structural aspects to the schematic architecture. The existing spheres are then converted into a more architectural form and merged with the exoskeleton into a bone-like, grown structure. In some aspects, the viewer might compare it to Peter Cook's *Montreal Tower*, where he made use of a similar concept of geometry distribution // fig. 12 //. A much simpler reference is the *Atomium*, created for the world Expo 1958 in Brussels, by engineer André Waterkeyn.

At computationally defined points on that existing geometry another algorithm is applied to enlarge the existing surface with 3D differential growth // fig. 13 //. On the living function, the growth is more extreme than on an energy or work volume or connection. Because of that geometric growth, the surface of the start volume is exponentially increased without creating a significantly larger volume.

In 1993, Lebbeus Woods, an American experimental architect, researcher and artist, published the pamphlet *War And Architecture*. It examines the situation in Sarajevo and the destruction created by war, and the philosophical and experimental architectural response to that. The existing structures (the scars) are combined with a new, parasitic architecture // fig. 14 //. This new architecture needs to break free from existing patterns to achieve utopian living. Woods "fuses the new and the old, reconciling, coalescing them, without compromising either one in the name of the contextual or other form of unity. The scar is a mark of pride, and of honor, both for what has been lost and what has been gained."<sup>22</sup>

Today, we are at war with our own self-created enemies. The concept of *ROOGOTFL* is fighting against climate disasters and social downfall. As architects, we can provide the framework for a better urban object: "We can not evolve evolution faster than evolution itself. There is no bypass possible through time. We have to construct the Master Frame first. [...] The complete set of rules forms the Initial Condition, where the hive lives in."<sup>23</sup> We need the 'hive' to evolve itself, "architecture, urban planning and even the design of entire nations have always played a vital role in the utopian imagination."<sup>24</sup> It must be underlined that neither utopia nor perfection is the ultimate goal. Utopian thoughts work more as guidelines, to an equal and joyful life for the people who seek it. The framework and the location are the start to a growing utopian orientated community. Offshore platforms are perhaps not the most ideal location. Nevertheless, the isolation of each node point in the network needs to provide itself with food, energy, maintenance, and leisure. This immediately creates jobs that do not consume the everyday life of an individual. Through emerging means of transportation, inhabitants can easily connect between the network and onshore cities. The complex macro geometry avoids "[t]he real terror [...] that the cities we have will be sacrificed for an overall conformity"<sup>25</sup>. The relationship between the feeling of a familiar environment and a new complexity, which reveals surprises from time to time, is in balance. The meso geometry provides the framework for a commune like, friendly co-living space. All living cells are designed to be optimized for good, and tried to be kept equal. Social difference is not promoted. Further, leisure activities are supported, as living cell clusters might share common rooms, kitchens, and other facilities. The urban network "should generate, reflect and activate life, [its] structure organised to precipitate life and movement."<sup>26</sup>

How are we going to live in the future, and what role will architecture play in a digital world? Every single line, every single location of all the data used



// fig. 12 // P. Cook - Montreal Tower



// fig. 13 // Differential Growth



// fig. 14 // L. Woods - Parasitic Architecture

<sup>22</sup> Woods, Lebbeus. *Rat i Arhitektura*. 5th ed., Princeton Architectural Press, 2002. p. 31.

<sup>23</sup> Oosterhuis, Kas, et al. *Jian Zhu Jiao Xue Shi Jian: Bei Jing 751 Di Kuai San Wei Cheng Shi Jie Gou She Ji*. Zhong Guo Jian Zhu Gong Ye Chu Ban She, 2009. p. 3.

<sup>24</sup> Claeys. p. 114.

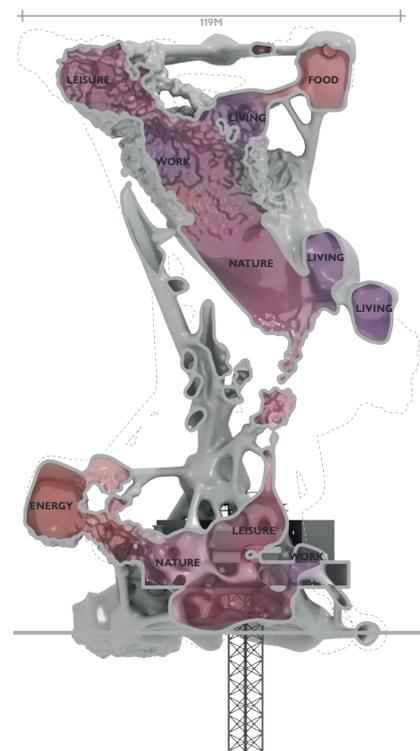
<sup>25</sup> Crompton, Dennis, and Peter Cook. p. 76.

<sup>26</sup> Crompton, Dennis, and Warren Chalk. p. 92.

in the project is generated by a computer program. The production and realization is planned with robotic operations to achieve a non-standardized, optimized form. It could be described as a gigantic puzzle with an “extreme individualization of the building components to the maximum level of detail”<sup>27</sup>. Smart devices, such as an intelligent, responsive skin will be introduced and controlled autonomously. The complexity and optimized individualization of each single aspect from mega, over macro and meso to micro scale, can only be handled by computer programs. “The computer [is] brought into action to automate certain aspects of the building process. It [reduces] costs of labour, [increases] production speed and [minimizes] human error.”<sup>28</sup> Often, opponents of computational design do not or do not want to understand the power and the design freedom behind computational architecture. This “*hokus pokus*” is then simply broken down on a sculptural, egocentric ‘formgasm’. This is incorrect. It is crucial, that nothing is random and everything is controlled by the architect of the algorithms.

Nowadays, it is more important than ever, to distinguish between an appropriate use of technologies and a potential abuse. Our society, human behavior, and cities are changing due to the exponential progress of technology. It might emerge as a balancing act between utopia and dystopia, between the total dependency and repression of the machines and the freedom to achieve more than we ever imagined. Society’s addiction to technical devices emphasizes the urgency at hand to begin to work with new technologies instead of denying the process categorically. We need to further develop our profession and work with the paradigm shift in architecture. Architects need to learn the language and logic of computers, to seize the world of zeros and ones, and not become slaves but masters of the digital world. Architects must seize the opportunities this shift provides us: powerful software and machines, in combination with traditional knowledge, finally give us the opportunity to create the opposite of the sterile and anonymous buildings we know today.

The most frequently asked question concerning the project *ROOGOTFL* is, who wants actually to live there? Is not it too far fetched to assume that more than a few people would consider to live on an offshore platform? First, we need to get prepared for radical changes in the future. It is absolutely conceivable, that soon, most people will no longer be able to choose where they want to live because land is no longer abundant. Second, even if we are able to choose, there are many individuals, especially from the younger generation, who seek to break out of the status quo and live a life to their own expectations. Woods calls this freespace, and that “[p]eople from every social class inhabit freespaces - whoever has the desire or necessity to transform their everyday patterns of life from the fixed to the fluid, from the deterministic to the existential.”<sup>29</sup> This future scenario we are facing has from a dystopian origins, a “crisis of knowledge, [a] crisis of geography, [a] crisis of conscience.”<sup>30</sup> These people of the crisis will have the manner and the ambitions to start a better, an ideal life, and to build up an improved society. Lebbeus Woods wrote the following as introduction in his pamphlet:



// fig. 15 // Section ROOGOTFL

<sup>27</sup> Oosterhuis, Kas. *Towards a New Kind of Building. ; A Designers Guide for Non-Standard Architecture*. p. 162.

<sup>28</sup> Vollers, Karel. *Twist & Build: Creating Non-Orthogonal Architecture*. 010 Publishers, 2001. p. 13.

<sup>29</sup> Woods. p. 32.

<sup>30</sup> Woods. p. 32.

“Architecture and war are not incompatible.  
Architecture is war. War is architecture.  
I am at war with my time, with history, with all authority  
that resides in fixed and frightened forms.  
I am one of millions who do not fit in, who have no home, no family,  
no doctrine, no firm place to call my own, no known beginning or end,  
no “sacred and primordial site.”  
I declare war on all icons and finalities, on all histories  
that would chain me with my own falseness, my own pitiful fears. [...]  
I am an architect, a constructor of worlds, [...] a silhouette against the darkening sky.  
I cannot know your name. Nor can you know mine.  
Tomorrow, we begin together the construction of a city.”<sup>31</sup>

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<sup>31</sup> Woods. p. 1.

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## LIST OF FIGURES

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