There is something else in the glove
  - alias Precarious Planning for Lynetteholm

Diploma Programme
Tereza Vesela

Political Architecture: Critical Sustainability

There is something else in the glove
- alias Precarious Planning for Lynetteholm

Royal Danish Academy - Architecture, Design, Conservation

Tereza Vesela: 200081

Thesis Supervisor: Niels Grønbæk

Master program: Political Architecture: Critical Sustainability

Program Brief: Contaminating Collaborations - Copenhagen - 2022

Table of Contents

" 'Sustainability' is the dream of passing a livable earth to future generations, human and nonhuman. The term is also used to cover up destructive practices, and this use has become so prevalent that the word most often makes me laugh and cry. Still, there is reason to dream-and to object-and to fight for alternatives. Rather than criticize the word, then, I'll take it seriously, repurposed as a radical argument in the face of hegemonic practice. Meaningful sustainability requires multispecies resurgence, that is, the remaking of livable landscapes through the actions of many organisms."

- Anna Tsing, *A Threat to Holocene Resurgence Is a Threat to Livability,* p 51.

Introduction and intention

In *The Mushroom at the End of the World* Anna Lowenhaupt Tsing argues that staying alive requires livable collaborations. *We-humans* depend on, and change through, these collaborative relationships, which happen both within and across species. "*Collaboration means working across difference, which leads to contamination*", and as Tsing continues, "*Without collaborations, we all die.*"[1]

The contemporary sustainability discourse does not seem to focus on such collaborations. More often it tries to come up with human-centred "solutions". For instance, a common rhetoric circles around "human - helping nature" or "human - saving the planet". This work is rather less focused on such heroic-human-actions.[2] By shifting its attention from the human-body to the mushroom-body – moving the human to the periphery, it re-discovers the entanglements of the world, and the creative potential which lies in cherishing these entanglements. Through *working with* mushrooms, this project is a collaboration across difference. The future is not given – rather than acting on human-made predictions of the future, it keeps an open mind. Collaborative relationships are open-ended, and their outcomes indetermined: who knows what the future holds?

This project suggests *Precarious Planning* as an alternative to the reality of contemporary urban planning and the problematics which comes with it. An alternative is not meant here as something to be considered at last resort. To the contrary – *Precarious Planning* is regarded as the only option. According to Scott Gilbert, almost all development may be codevelopment.[3] Gilbert refers to the ability of the cells of one species to assist the normal construction of the body of another species. This suggests that nature selects "relationships" instead of individuals. We all are constantly in position of precarity, being dependent on each other and the world around us. Every human-made proposal is equally part of this system. Through facing the question of our own survival, we are finally forced to notice and accept this reality. And it seems now - more than ever - an urgent matter for the human beings to recognise these interdependencies and act - *and plan* - accordingly.

Precarious Planning is a system based on interdependencies: placing its actors into deeper dependence on each other, while making these dependencies tangible and obvious. Anna Tsing defines *Precarity* as a state of acknowledgment of our vulnerability to others.[4] Through acknowledging my vulnerable position to mushrooms I exit a state of self-containment and instead enter a state of creative collaboration.

1: Anna Tsing, *The Mushroom at the End of the World, p. 28.*

2: This is not meant here as an invitation to withdraw from the human responsibility, and from the power of human agency.

3: Scott Gilbert, *A Symbiotic View of Life: We Have Never Been Individuals.*

4: Anna Tsing, *The Mushroom at the End of the World, p. 29.*

The *Precarious Planning* method is constructed according to the following rules. The seven *Precarious Planning Rules* are the obligations and regulations of the planning system and will be discussed further in the following chapters of this program.

Precarious Planning Rules

I.   *Planning through Vulnerability and Indeterminacy.*
       A plan which makes humans and non-humans vulnerable to each other and is open ended.

II.   *Urbanism of Care (rather than of Growth).*
       Making kinship instead of extracting resource.

III.   *Preventing Scalability and acknowledging Situatedness.*
       Taking inspiration in systems which are difficult to scale. Relating to systems and lives already present.

IV.   *Porous Architecture (rather than the Architecture of Anaesthesia).*
       Architecture which allows humans to become sensitive to the world around.

V.   *Relating time to natural rhythms.*
       Growth of non-humans rather than the idea of linear economic growth of capitalism.

VI.   *Working with non-humans.*
       Rejecting the fabricated duality of culture-nature and moving human from the centre to the periphery.

VII.   *Encouraging Entanglement, Heterogeneity and Contamination.*
       Building relationships rather than individuals, objects and identities.

The proposal is grounded in a somewhat tangible – yet so far non-existent – Lynetteholm development project. Lynetteholm offers itself as one of - way too many – scalable urban projects[5] which can be seen all over the world, therefore, it seems as a viable case study to face the contemporary issues and challenges of the built environment . One striking, nonetheless not uncommon aspect of Lynetteholm is its paradoxical relation to the reality of climate crisis. The project, on one hand, follows the logic of economic growth which comes together with the narratives of "better future" achieved through progress. Yet on the other hand it presents itself as a sustainable development that protects the city of Copenhagen and its inhabitants from the upcoming storm surges. Lynetteholm is presented as a "green proposal" that is aiming to find solutions to climate change.

As we all may have probably sensed now, progress does not necessarily equal bright future. This thesis is an experiment which combines something as purely "progress minded" as Lynetteholm development with non-human rhythms and growth logics of mycelium. By combining the mushroom-world and the human-world, I argue that there have never been two worlds in the first place. The new precarious proposal of Lynetteholm does not rely on the idea of progress through economic growth, and western fabrications which created an image of the world that is scalable and dual in man-animal and culture-nature divisions. Instead, it calls for the theory of non-scalability[6] and planning, which is not human-centred, as the only possibility to create a truly sustainable future.
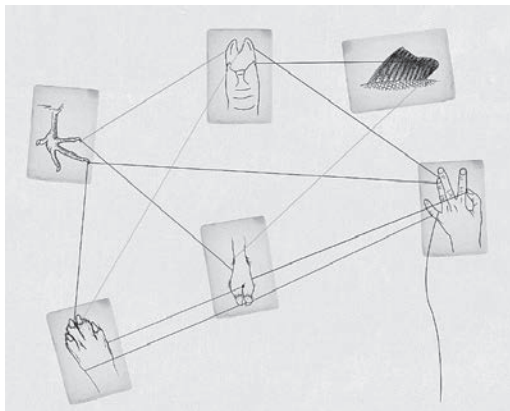
5: Scalable projects are those that attempt to expand without changing design, therefore, do not allow for change, and exclude cultural and biological diversity.

6: Anna Tsing, *On Nonscalability.*

Fig.1: *Multispecies Cat's Cradle* byNassir Mufti.

Fig.2: *Lynetteholm Atlas – will be expanded during the design process.*

"Progress felt great; there was always something better ahead … The problem is that progress stopped making sense. More and more of us looked up one day and realized that the emperor had no clothes."

- Anna Tsing, *The Mushroom at the End of the World, p. 25.*

Lynetteholm Grounding

The following chapters unfold the main characteristics, drivers, and goals of Lynetteholm as currently planned by By & Havn. Lynetteholm shares these characteristics with multiple scalable urban developments around the world; and this trend makes Lynetteholm an appropriate case study for my thesis project. In the *Lynetteholm Grounding* chapters I identify "planning rules" of the current development and offer the so-called Precarious Planning Rules as an alternative.

Ideologically Lynetteholm embodies narratives of better looking-future which is in the broad public still seen as inevitably linked to progress through economic growth. Economic growth is the prime driver of the majority of urban developments in Copenhagen. The reason behind this lies within the two main companies delivering most of the city developments - By & Havn and Metroselskabet. These are both primarily owned by the municipality which, however, also implies that the municipality is responsible for the debt they create. These two companies have since their establishment accumulated a large amount[1] of debt which, they may not be able to pay back in any tangible future. Therefore, in order to pay the debt back, By & Havn and Metroselskabet are forced to sell as much land as possible, at the highest possible price and rapid pace.[2] This certainly influences the character of urban developments that By & Havn produces, as is, for instance Lynetteholm. Paradoxically, By & Havn tries to advertise Lynetteholm as a sustainable development, while using strong sustainability rhetoric on their website. For instance: *"Lynetteholm: we recycle the land locally for a storm surge protection"* or *"a circular project where the earth's own resources are recycled"* [3] and so on. Lynetteholm is, according to By & Havn, intended to be self-financed, which is crucial for maintaining its political support.

According to By & Havn, Lynetteholm responds to contemporary and future challenges with four following solutions: 1. storm surge protection of Northern Copenhagen, 2. discard of surplus soil, 3. housing for 35 000 inhabitants and as many jobs, and 4. new infrastructure which prevents congestion in central Copenhagen.[4]

"The four visions" proposed by By & Havn are modified according to the Precarious Planning Rules. The main aim of my thesis is to find a methodology of urban planning that does not identify economic growth as the main driver, yet at the same time it does not simply withdraw itself from the discourse.

Fig.3: *Lynetteholm from bird eye view - OWI, Arkitema, Tredje Natur.*

1: 45 billion kr. measured in 2007. K. Hjerrild, *Politiken* 2017.

2: A. E. Mørk, *City of the Anthropocene.*

3: By & Havn's webpage, accessed 1.2.2022. By & Havn regularly update their website, with the visions for Lynetteholm being changed frequently. My hypothesis is that the company shifts their PR strategy according to the current public discourse around the development.

4: Københavns Kommune's webpage, accessed 1.2.2022.

TREDJE NATUR

Fig.4: The placement of Lynetteholm as proposed by By & Havn.

The premise is that we might need to discover – or re-discover - a methodology of world-making, which does not rely on the mindset of the *Western-Modern-Man*. This mindset is based on three main notions, being: "First, *the illusion of control* – as the modern man believes one can control the world one is situated in. Followed with the idea of *isolation* – which suggests a false hope for the modern man that by isolating one can protect oneself from the dangers of the world. And lastly, the notion of *invisibility* as for the modern man the effects of one own's actions remain hidden."[5]

5: Tereza Vesela, *WA - Architecture of General Anaesthesia.*

A shift of this mindset is a necessity for human and other species survival on Earth. Therefore, this project aims to discover *Precarious Planning* as a method of human world making, which leads to a mindset of "meaningful sustainability", based on multispecies collaboration. The proposal does not only subscribe to this mindset, it also instructs humans present in the proposed architecture to engage with the world in a sustainable way.

The aim of the thesis is not to rigorously critic or disregard the global sustainability discourse. Neither it is to reveal how are mainstream sustainability goals implemented into urban development projects, or how is the sustainability aspect being lost during the realisation phases. My intention is rather to shift focus from these goals in a first place and try to approach the problematics with a completely different method.

"For instance, one of leading theories of environmental sociology – referred to as ecological modernization theory, does not reject capitalism nor growth. Instead, it tries to find solutions to climate crisis within the current system. This has been criticised as conflicting with sustainable development, one of the reasons for this being that 'inventing green technology to proceed as usual, inevitably restrains a discussion of whether the scale of the consumer society, is sustainable in the first place'."

- A. E. Mørk, *City of the Anthropocene,* p. 10.

Protection … or The Architecture of Anaesthesia?

Lynetteholm is proposed as a long-term project with its expected completion date in 2070. By & Havn advocates this long run vision as a way of solving future issues, related to the effects of climate change, while at the same time delivering solutions to contemporary challenges (for instance car traffic in inner Copenhagen). Among one of the more future-focused goals of the project is its ability to protect Northern part of Copenhagen from the predicted storm surges. One might see this strategy of climate protection as quite paradoxal.[1] It is argued that the assessment of the impact Lynetteholm will have on the *current* environment, biodiversity and wildlife is insufficient.[2] One of the reasons being, that the phases of the construction are treated as three individual projects, therefore, also assessed separately, meaning the impact is estimated for the initial construction only. However, the environmental consequences of a construction of the Lynetteholm perimeter are very different to the ones of a full scope landfill in Øresund or a project that includes construction of homes for 35 000 people, new metro and Østlig Ringvej.

The chosen location of the development is also being questioned, as it is predicted that rising waters from the South require more urgent attention. This factor suggests that the aspect of climate protection is mainly a way of advertising the project, while in reality the profit aspect has higher priority. The attractive location of Lynetteholm allows By & Havn to sell off land of high value for high-end apartments.

Lynetteholm constructs one significantly more important barrier than the one of the storm protection, which is, however, not publicly disclosed by By & Havn. If Lynetteholm is constructed in its full size – as proposed by By & Havn, it blocks most of the Kongedybet sea channel.[3] This channel is responsible for the inflow of saline and oxygen-rich bottom water from the Kattegat down through the Øresund to the Baltic Sea. It is, therefore, predicted that the blockage would have fatal consequences on the whole ecosystem of the Baltic Sea.

The vision number one – Climate Protection – is, I believe, a principal example of the mindset of the *Western-Modern-Man*, which this thesis argues against. All three notions mentioned earlier are present here: First, *the illusion of control*, as By & Havn seems to know what the future looks like in 2070, suggesting one can predict and control the future. However, the average sea level in the world's oceans can rise by as much as 15 meters in just 150 years.[4] This would render Lynetteholm's protective qualities obsolete. Furthermore, the idea that we can control the environment around us, be it weather phenomena or water - is a very

1: One can argue that Lynetteholm is a project of scalable mindset, therefore, it is one of many projects which impact the environment in a way that results in climate change.
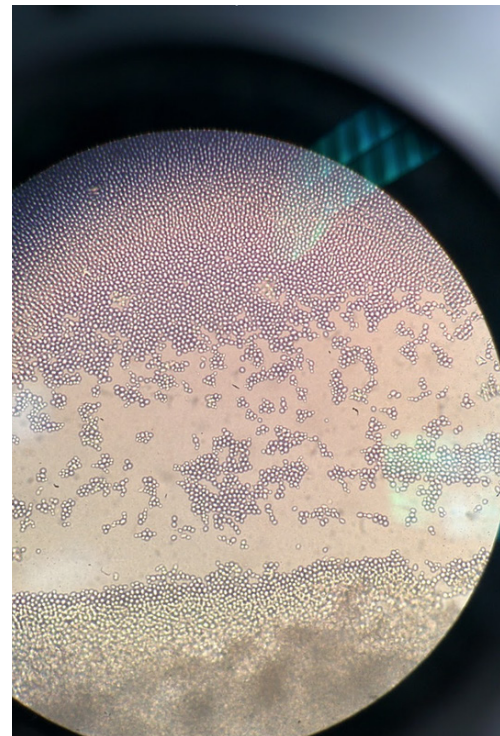
2: A. E. Mørk, *City of the Anthropocene,* p. 50.

3: Karsten Mangor for Byrummonitor and Morten Holtegaard Nielsen interviewed 20.1.2022.

4: Benjamin H Strauss et al, *Unprecedented threats to cities from multi-century sea level rise.*

modernist one. One could argue that the human urge to control "nature", and the human believe that total control is possible, is something that brought us into climate crisis in the first place.


Second notion – that of *isolation* – relies on the idea that we can protect ourselves from the effects of climate change by building a barrier between us and the environment. Precarious Planning Rule number IV. calls for *Porous Architecture* instead of architecture which is isolating, producing anaesthesia. In *X-ray Architecture*, Beatriz Colomina claims such "isolating tendencies" as the very core of modern architecture, while she also attributes the birth of modernism to the birth of tuberculosis, as architecture became a way of environmentally controlling the disease.[5] A fear of the soil – ground – dirt and "nature" was born. Along with the believe that we can protect our bodies from the world around us by isolation ourselves in protective cocoons of sterile, modern architecture. Unfortunately, isolation does not protect us, to the contrary – it creates new dangers. Moreover, as a reaction to isolation humans became anesthetized – numbed by the sterility of the white wall.

On their website, By & Havn state to "plant twice as much new eelgrass as will disappear as a result of the development". This is in my opinion a very common method of covering-up destructive consequences through sustainability rhetoric. On one hand we destroy large amount of eelgrass and the organisms which already have a life in this habitat. However, this is acceptable, because later we can plant twice the amount of eelgrass.
- By & Havn's webpage, accessed 2.2.2022.

Fig.5: Microscopic image of *Candida auris* – a human-pathogenic fungus, often referred to as the first known pathogenic fungus emerging from the effects of climate change.

5: Beatriz Colomina, *X-Ray architecture,* p. 183.

The climatic protection of Lynetteholm – as a modernist cocoon - has anaesthetic properties. Such *architecture of anaesthesia* renders effects of climate change intangible for human beings.[6] We are indifferent, unchanged, untransformed by our experiences. How are humans supposed to come closer to any solution to climate change if they can't experience the effects of it on their own bodies?

6: See: *WA - Architecture of General Anaesthesia* for further reading.

Lynetteholm, as now proposed by By & Havn is *the architecture of anaesthesia*. A scalable project with un-sustainable mindset of the modernist master planner.
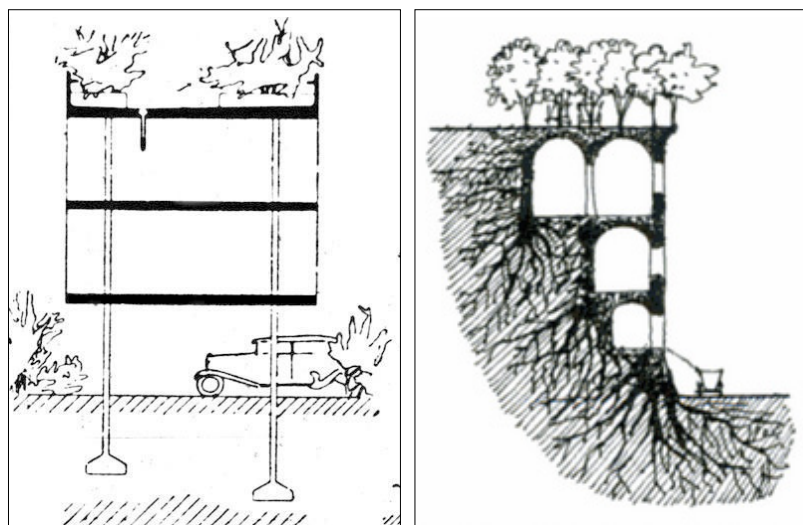
Fig.6: Excerpt from Le Corbusier's Five Points diagram.

Fig.7: Arthur Wiechula's grafting diagram.

"Floating islands with breezy, colourful glass pavilions … floating cities with grass tennis courts, sea terraces, and many other things. Everyone in America is plagued by hay fever … So during the flowering season, we'll have to live in the middle of the ocean … Our Oceanic Sanatorium Society for Hay Fever has found just the right thing: floating islands that will always drift hundreds of miles away from dry land and natural islands. On our islands, dirt will be non-existent."

- Paul Scheerbart, *Das Ozeansanatorium für Heukranke*, p.123, trans. by Erik Born. Taken from: Beatriz Colomina, *X-Ray architecture*, p. 87.

Precarious Planning acknowledges the future as uncertain. Lynetteholm is therefore constructed "along the way". To this end, the project finds crucial inspiration for time-context specific architecture in the spatial transformations of Venice, which grew over centuries from initially a few small sand dunes in the lagoon.[7]

7: Refer to figure 10 and page 20 for further reading.

Instead of setting a predefined timespan, which relies on western fabrications of time, *Precarious Planning* is based on natural rhythms: weather seasons, growths of plants, animals, and fungi. Climate is rapidly changing, and as *Precarious Planning* is based on change, it is capable of facing such shifts.

My proposal responds to the question of climate-proofing Northern Copenhagen through negotiation of the comfort politics.[8] The proposal protects the city, yet not through building a strict barrier, which would make its inhabitants numb, allowing them to ignore the environment. Instead, the proposal of Lynetteholm needs to be porous. It allows water, salt, temperatures, organisms to flow through it. It allows humans and non-humans to come to direct contact which each other, building relationships, recognising human dependency on the non-human entities.

8: See: *WA - Architecture of General Anaesthesia* for further reading on many comforts instead of one scalable comfort.

Fig. 8: UMA - Mushroom Hut - A hut made out of mushroom - Sweden, 2021.

Moving Soil

"We completely disagree that Lynetteholm is necessary or sufficient to solve the first two problems related to climate protection and landfill. We believe that the planned expansion of Lynetteholm and the planned harbour tunnel will only create additional traffic and increase congestion, and finally that housing prices are going to be at the high end of the housing market as it is precisely the sale of buildings which finances infrastructure projects."

- Kjeld A. Larsen, *RBT's Høringssvar for Lynetteholm*, p.2, trans. by the author.

According to the Copenhagen municipality, the island of Lynetteholm will be constructed with "surplus soil" from the construction sites around Copenhagen. The need of the city to get rid of large amounts of soil is being used as one of the main arguments for the development: *"If not there then where?"* Nevertheless, this argumentation does not stand very well, as other municipalities are also interested in the "surplus soil". Especially keen is Hvidovre Kommune, which is in acute need of soil for the construction of Holmene – a new district of nine man-made islands. Moreover, handling surplus soil from construction sites is one of By & Havn's tactics of "self-financing" the development.

By & Havn aims to source 80 million tonnes of soil from the construction sites, including the new metro, Østlig Ringvej and excavated soil from future underground car parks (for example under Dante's Square). This method is being

presented as the most sustainable way of handling surplus soil. However, material and earth transport amounts for a considerable part of the CO_2 emissions of the project.[1] This does not go well along with the 2025 CO_2 neutrality goal. In 2020, the municipality disclosed guidelines on achieving the CO_2 neutrality goal in the *Roadmap 2021-2025*. This document also revealed that the CO_2 emissions from transport has been the largest contributor to the municipality's CO_2 emissions in the year 2021.

1: Kjeld A. Larsen, *RBT's Høringssvar for Lynetteholm*, p. 8, trans. by the author. Furthermore, according to the council for sustainable transport, the capital region suffers shortage of raw materials (sand, stone, and gravel). The so-called "surplus soil" can, to a certain extent, substitute raw materials.

Humans are not the only actors moving soil.

Fig.9: Photographs of non-human actors transporting soil.

The way we understand and engage with soil is yet another paradox of the contemporary built environment. For instance, most buildings in Nordhavn have been constructed using sand (subsequently concrete) which has been sourced from the seabed in Øresund. This method is very disruptive to the environment, as the ships suck up sand from the seabed, destroying great amount of wildlife while doing so.[2] The sand sourced from the Øresund is thereafter transported and used in concrete constructions of buildings around Copenhagen. The soil located on the construction site is then during the process turned into the so called "surplus soil" and considered as a material that needs to be transported again and discarded. Therefore, the soil and sand are not thought of as connected to any particular location.

2: Mads Nyvold, *Zetland*, 2017.

Furthermore, the perimeter of the island relates to the site as to an empty blue plane – another example of the modernist mindset. The outline of Lynetteholm seems rather as a geometrical gesture, drawn from above, and it does not refer to the topography of the seabed. Coastal engineer Karsten Mangor argues against the position of Lynetteholm, describing the proposal as an iconic design, without any relation and understanding of the site conditions: *"They have drawn two circular arcs and must have imagined that it would look nice when you come flying in over the peninsula"*. And continues: *"It is not possible to design a functional artificial coastal landscape without respecting basic hydraulic, environmental and coastal technical conditions"*.[3] I would argue that By & Havn consciously ignores the present conditions, as there are other priorities in play.

3: Karsten Mangor, *Byrummonitor*, 2021.

Precarious Planning finds inspiration in the spatial transformations of Venice, as an example of non-scalable and situated planning. The Venetian lagoon was filled with dynamic, ever-shifting low islands and sandbanks. The city originated from a series of smaller islands (not as one massive plane) with the land being reclaimed little by little. As the population grew, the shores were extended, and the islands were eventually joined up through gradual process of land reclamation. The Venetians knew hydrodynamics of the lagoon well. The canals preceded the system of pedestrian alleys. The urban fabric was founded on the position of the lagoon channels.

The sea currents, salt, soil – were a dynamic, harsh environment which had to be respected by Venetians and their structures. The architecture required constant maintenance. The city and its inhabitants were transformed by the conditions around. Venice was *not a city of anaesthesia*.

The various parts of the complex system – the rivers, the chain of offshore islands, the porti, the marshlands, and the urban complex – slowly came to be seen as a unit. This chronicle of work projects, ordinary and exceptional, describes the slow emergence of a city and of an urban order. It also shows how, as the group asserted its mastery over an unstable environment, a political and social organisation came to be built, as least in part in response to the challenge of the waters.

- Elisabeth Crouzet- Pavan, Venice Triumphant: The Horizons of a Myth.

The complexity of the Myth of Venice[4] – an image of the ideal city as a cohesive and stable community - is often explained through following categories: The geographical explanation, the economic explanation, the social explanation, and lastly – the ecological explanation. Sophia Psarra refers to the dynamics of Venice as *"transformed gradually from within, by the collective actions of people, rather than being generated by a single mind, or centralised as a single representation."* [5] Venice social structures were characterised by wide heterogeneity, and the members of the diverse sectors of the society were spatially dispersed across many islands – decentralised.

4: A system of beliefs that in the fifteenth and sixteenth centuries became formalised as an ideology, posing Venice as the exemplary Republic. - Sophia Psarra, *Venice Variations*, p. 62.
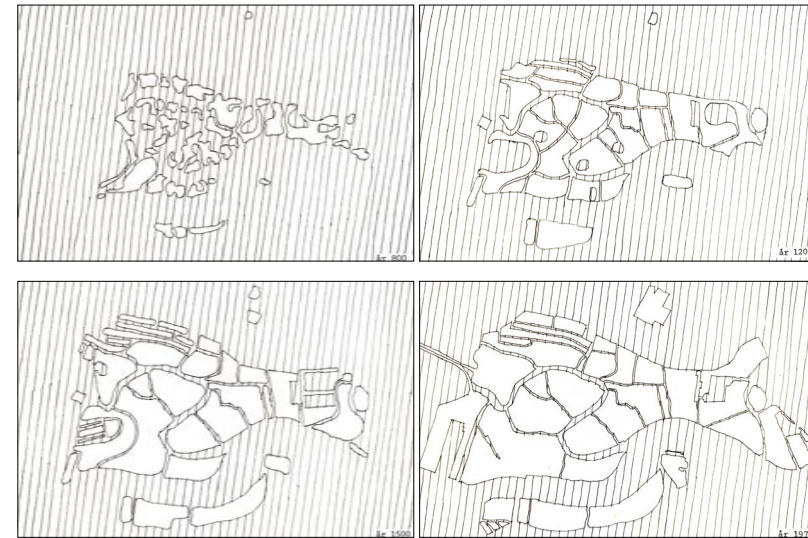
5:Sophia Psarra, *Venice Variations*, p.10.

Fig. 10: Venice 800, 1200, 1500, 1970.

Precarious Planning, in contrary to the modernist planning, relates to the site and regards the soil as situated. The seabed sediments are being constantly moved and rearranged by non-human powers. Instead of neglecting those moving forces, I work with them. The sediment dynamics depend on the balance between external moving forces, such as waves and currents, and the stabilizing forces of the sediment. Three types of sediment can be found on the proposed site of the project: *Moraine clays*,[6] which originate from previous deposition period (the last ice age) and two finer sediments – *sand*[7] and *muddy sand*.[8] The transport rate of *sand* is the highest.

6: Mixed sediment type of glacial origin. Often completely covered by less than 0,5m of rock, gravel, coarse sand, mud, and moraine clay.

7: Very well sorted, uniform bottom of loose sand. Often rearranged and transported by bottom currents and wave activity.

8: Very variable ratio of sand and mud. Deposited on the edge of basin areas or as a thin cover on parts of erosion areas.

Lynetteholm starts from multiple points that grow with time. After studying hydrodynamic conditions of the site, barriers – "sand traps" are being placed in strategic locations in order to collect sediment. These "sand traps" take energy

from waves, collecting sediment, and through doing so forming the islands. In case of a storm the wave energy increases and impacts the sediment transport. The frequency and order of such events is crucial, as the stronger and more frequent storms, the higher sediment transport. This suggests that with climate change the more storms there will be in the future, the more sediments will be transported – creating larger islands and increasing the "protection" of Northern Copenhagen.

"Forced life is not the organization of the forces of life and death for flourishing, but rather for extractive profit. It's about ecological obliteration through turning all of the earth into nothing but a resource for keeping human beings alive and growing."
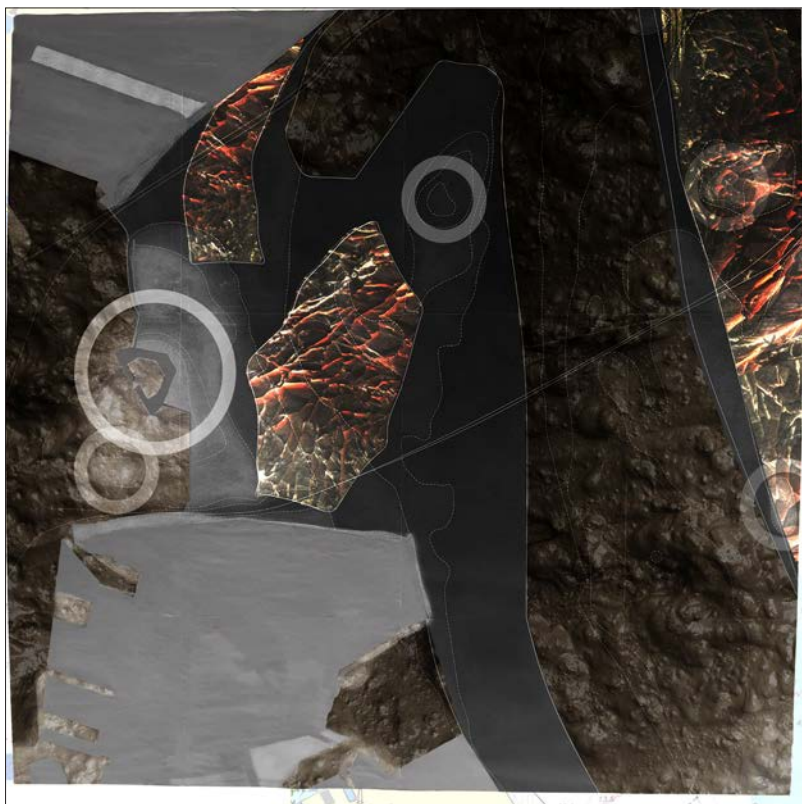
- Eric Stanley in *Monoskop*, 2017.

Fig. 11: Map of the site. Shallow waters - key points marked with circles. Moraine clays and muddy sand marked with different textures.

The Role of The Human

Housing shortage in Copenhagen is defined by By & Havn as another driver of Lynetteholm. The Copenhagen Municipality states that there will be approximately 130 000 new inhabitants in the city until year 2050. The project is supposed to offer socially inclusive households for 35 000 residents. The current proposal should reserve 25% to affordable housing, which is supposed to be financed by the remaining 75% of expensive properties. Nevertheless, it has been argued[1] that this strategy contributes to socioeconomic disbalance of the real estate market.

1: A. E. Mørk, *City of the Anthropocene*, p. 47.

Moreover, the idea of providing socially inclusive housing does not correlate to the fact that By & Havn, as the prime developer, enters the project already massively indebted, which suggest its main interest lies in maximum profit from the very start. This also excludes the possibility of developing the island without residential program – which has been, furthermore, used as an argument for the exclusion of the impact of the future housing in the environmental impact assessment. Lynetteholm development is additionally supposed to expand current infrastructure in order to solve the traffic congestion in central Copenhagen. The plan is to divert traffic through the extension of Østlig Ringvej and new metro lines. However, the concept of *induced demand*[2] claims that building more roads does not reduce the amount of cars, in fact it might have exactly the opposite effect. Moreover, the private vehicle transportation remains the main focus, which does not correlate to the image of ambitiously sustainable development, which is By & Havn trying to uphold.

2: A. E. Mørk, *City of the Anthropocene*, p. 47.

The third subchapter of the *Lynetteholm Grounding* is related to the question of the human presence and the human role in Lynetteholm. *Precarious Planning*, first and foremost, creates architecture which is not human centred. How do we - as humans - generate architecture that does not exclusively promote us?

In contrast, this project follows thinkers that contribute to the theoretical approaches to *entanglement*, as is – Anna Tsing, Donna Haraway, Bruno Latour, Laura Ogden, Vinciane Despret and others. Donna Haraway, for instance, describes the process of worldmaking as always happening in terms of companionship among species, therefore, relationships between non-humans and also humans. Or as Ogden says: *"… what it means to be 'human' is constituted through changing relations with other animals, plants, material objects, and the like."*[3] Only by establishing and - acting through - relationships with other species we can break western fabrications of dualities "animal - human" and "nature – culture". Laura Ogden and Vinciane Despret also refer to the processes of *becoming animal.*

3: Laura Ogden, *Swamplife : People, Gators, and Mangroves Entangled in the Everglades*, p.2.

The notion of *becoming animal*, is used as a methodology of the project, and will be discussed further in the following chapter. By working *with* mushrooms, the project should be seen as an architecture *for* mushrooms.

In my thesis, Lynetteholm is proposed as a system of dependencies. The actors of the plan – humans, mushrooms, water, and other entities (to be discovered during the project development) depend on each other. The architecture triggers attention to the "resources" of the system, which are made visible and tangible. The "reach" of the resources is an exploitation limit. A restriction to the "infinite growth" is established by the "actual growth" of the actors of the system. Humans rely on finite resources, which are potentially regenerating - if *cared for*. Therefore, humans need to *care* for the system, otherwise it destabilises and eventually disintegrates. Caretaking becomes an important aspect of human life. The system is sustained thanks to collaborations of its many actors. Through these relationships the community gains resilience and autonomy. The mindset of the human is changed through *caretaking*: taking (*caring*) part in the Lynetteholm community.
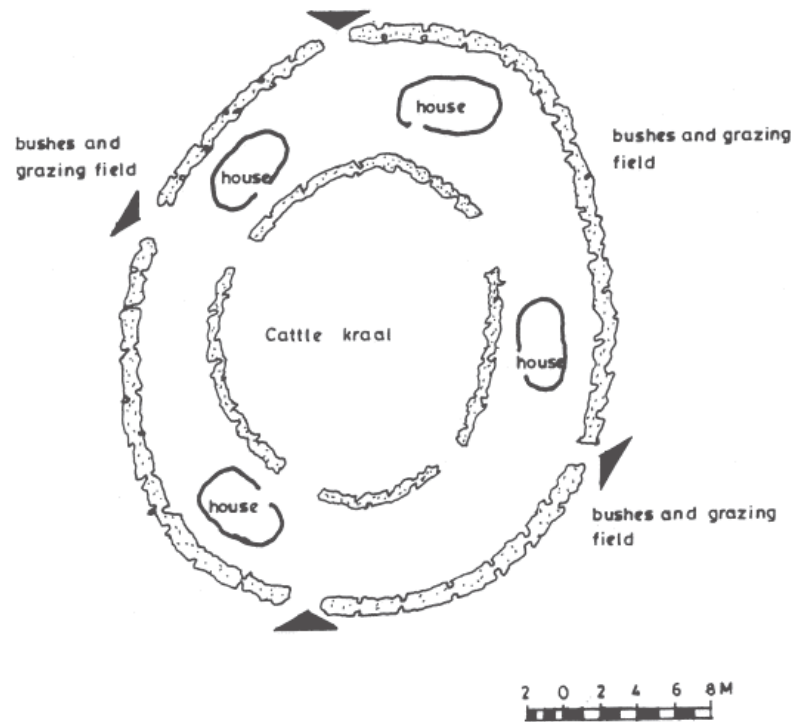

Fig.12: The spatial arrangement of Maasai village in Kenya – an example of architecture orchestrated around the relationships between humans and non-humans.

24

Methodology – The Mushroom Hat

"The ultimate problem of design concerns not how I design the world outside, but how I design myself—or, rather, how I deal with the way in which the world designs me."

- Boris Groys, *Self-Design and Aesthetic Responsibility.*

Planning systems are usually about predicting and consolidating the future. Instead of starting with control by defining a framework of the future, *Precarious Planning* is a method which begins with the condition of open-endedness. From this condition new possibilities and directions can emerge. Collaboration with mushrooms makes open-endedness possible because the mushroom can equally "lead the way". In her paper *The Becomings of Subjectivity in Animal Worlds* Vinciane Despret describes how *the possibility of misunderstanding* is the foundation of any language formation – and this includes situations in which animals and humans communicate. As an example, she offers the work of Irene Pepperberg with Alex, grey parrot from Gabon.[1]

"Her (Pepperberg's) practice shows us that to teach a being to speak presupposes not only a tolerance of but also a profound interest in misunderstandings. When Alex, … inadvertently produced a new signifying sound, the researchers would act as if this sound was intentional and respond to this new act of language as if Alex had wanted to demand something or comment intentionally. The effect of the misunderstanding, of the "as if", is that a sound produced accidentally can thus become a word that signifies something for the parrot because it has signified something for the researcher."[2]

In this case, Pepperberg's project is open-ended, as meanings are created along the way – and decisions are distributed equally among both the researcher and the parrot. Despret also offers examples of cow breeders – humans that work with animals. For animal breeders the question itself of the difference between humans and animals is not relevant: *"Thus, we often heard this proposition: "the animal understands us better than we understand animals". More specifically, Manuel Calado Varela states, "the animals know what we want but, we, we don't know what they want". This way of setting up the contrast is anecdotally supported: "when I open the doors, the cows know I want them to go out, but I don't know if they really want to go out", "in fact, they know us better". Several very similar testimonies to these evoke the fact that animals know us in a manner that is sometimes incomprehensible for us."[3]*

1: See: *WA - Architecture of General Anaesthesia* for further reading.

2: Vinciane Despret, *The Becoming of Subjectivity in Animal Worlds,* p.125.

3: Vinciane Despret, *The Becoming of Subjectivity in Animal Worlds,* p.133.

An important aspect of the methodology of my thesis project is direct work with another organism. I have chosen to work with fungi for multiple reasons. Fungi have very adaptable and resistant metabolism, there are only very few places on Earth where fungi can't be found, as they survive nearly everywhere. Fungi are significant "collaborators". As far as we know, there is no naturally growing plant in the world that can survive without fungi.[4] One fungus located in Oregon, belonging to *Armillaria* species is believed to be the largest organism alive, spreading around ten square kilometres and with its age being estimated to two to eight thousand years. It is being estimated that there are approximately 2,2 – 3,8 million of fungi species on earth, which suggest that humans described only a tiny fraction (around 6%) of these organisms.[5]

Anna Tsing and Donna Haraway define our time as the *plantationocene* - the age of the scalable project.[6] If sugarcane is an example of organism which one's production is "easily" scaled, fungi stand on the opposite pole. There is only a fraction of fungi which are "disciplined" enough to be controlled – and transformed into an industrial resource. Moreover, human beings, at least in the western-cultural context, seem to fear mushrooms. In our minds, mushrooms are also inevitably linked to death and decay, which can be one of the underlying reasons of the Mycophobia in the western world. Facing mushrooms means facing one's own mortality.

Previously mentioned Beatriz Colomina claims the building of a sanatorium to be an important manifestation of modern architecture.[7] It is not only the visual hygiene of the clean white surface. The modern sanatorium goes even further with the buildings programmatically hiding "death" from the patients and visitors. Some sanatoriums did not accept serious cases, and many confined very ill patients to the areas of the building located closer to the ground or underground. Dead bodies were carried out of the buildings through subterranean tunnels. It is the architecture – trying to hide something humans are afraid of. This time it is our own mortality.

The collaborative methodology of my thesis starts with a creation of a *Mushroom Hat.* A hat – as something to be placed on top of a human head – is a symbolic enactment of the shift of the human mindset, from exploitative relationship to a collaborative one. The Mushroom Hat, however, is not only a symbolic artefact. One does also "become a mushroom" by wearing - and most importantly creating - a mushroom hat. The usual process of working with fungi in the built environment is by producing brick like moulds filled with mycelium, which

4: Merlin Sheldrake, *Entangled Life, p.10.*

5: Merlin Sheldrake, *Entangled Life, p.16.*

6: "*The plantation turned its elements, be it sugarcane or enslaved people, into trans-plantable and isolated units, commodities that allow expansion without change.*"

7: Beatriz Colomina, *X-Ray architecture,* p. 63.

are subsequently baked – drying the fungus, therefore freezing the fungus in a particular stage of its life process. The Mushroom Hat, on the other hand, allows the fungi to go through all stages of its life cycle, as the ultimate aim is towards non-extractive, living architecture.

Fig.13: Floating island of *Ganoderma lucidum.*

A hat can be a ceremonial object. Ancient Romans celebrated *Robigalia* – a festival devoted to a fungi god Robigus. Robigus was a god to be feared, as the annual harvest depended on his good will. In the age of plantationocene the idea that humans are fully in control of their crops took over, mostly due to scalable inventions like pesticides and monoculture. However, it has been proven that scalability creates new and even more dangerous pathogens. One of the examples being *Candida auris* - a human-pathogenic fungus.

The birth of the precarious Lynetteholm is a ritual for starting a city. One could imagine humans walking on the new land, equipped with fruiting mushroom hats, dispersing mushroom spores to the soil. An initiation ritual, that has been forgotten in western cultures.

We are in constant collaborative relationships with all the elements around us – just at this moment your body contains dozens of fungi, which are necessary for its healthy functioning.[8] The proposal of Lynetteholm – as everything else - is an entangled precarious system, and the island relies on many elements. In order to visualise and understand these relationships, I created an installation, containing a mushroom glove which hangs from a series of "nails". If one nail fails, the glove falls down. If one nail bends, the glove changes position. Some nails carry more weight than others. The glove goes through different stages of life, in some moments it is heavier, in others it dries and becomes lighter, at a certain point it starts to grow fruiting bodies, putting more pressure on a particular nail.

The mushroom glove is not just a metaphor for Lynetteholm. It is also "a question machine". Each nail possesses a narrative and many questions to be answered during the future development of the project. For instance: What is the *hemp cloth*[9] nail? Is it a porous membrane, which holds the sand and at the same time provides nutrition for the mushrooms? Could there be an organism that changes the salinity of the water, creating conditions for the mushrooms? Can fungi hyphae bind soil, forming islands which humans can walk on? What does it mean for a human to propose for a non-human entity? What is the role of the human in such a relationship? We might not know what the mushroom wants, yet we know that there is a lot we-humans can learn from the mushroom. Maybe the question is not if the mushroom needs us, but rather if we need the mushroom. Maybe the question of *need* should be instead re-phrased into the question of *creativity*. Lynetteholm is a place where "otherness" has a chance. Therefore: What new expressions can come out of these collaborative relationships?

8: Carl Zimmer for *National Geographic*, 2013.

Hemp cloth
What materiality?
How does it support?
How does it let go?

Caretaker
Who is it?
Is everyone a caretaker?
How does one become a caretaker?
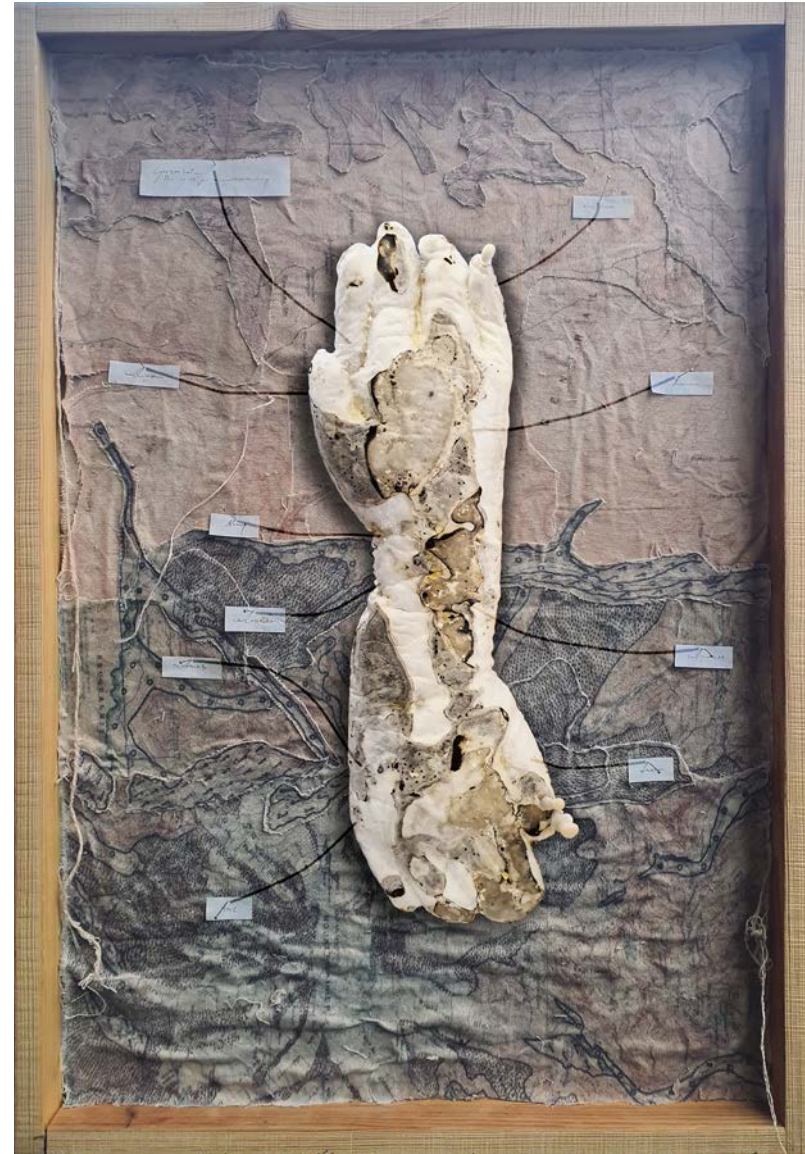
9: Material used in construction of The Mushroom Hat.

Currents
How to build together?
The rhytms and time?

Soil
What is the soil to the current?
Who lives here?

Mushroom
What mushroom?
How did it get here?
What is the mushroom to the human?

The Hat
Who wears it?

Human
How did it get here?
What is the human to the mushroom?
What do humans do here?

Substrate
What substrate?
Who is a substrate to who?

Water
Saline or fresh?
How to work together?
Who lives here?

Design Process and Deliveries

In my thesis, Lynetteholm is proposed according to the rules of Precarious Planning. This program is a point of departure of the project, therefore, the Precarious Planning Rules can be re-written as the project grows. The method of working is to combine digital and analogue making – writing - reading – and specialist consultations into one process. Direct physical contact with the stakeholders – for instance mushrooms, is a very important part of the design process. The final proposal of Lynetteholm is influenced along the way by the growth of the mushrooms (and other species - to be discovered along the way) which also influence me as a co-author.

The following list of deliveries is suggested as a guideline and can be updated during the design process. The representation of the project needs to visualise temporalities and dynamic rhythms, such as mushroom growth, sediment collection, island formation, and so on. The project has a dynamic character and embodies change, which should be reflected in the final work produced.

Fungi experiments (+ appropriate containers):
Mushroom Hat
Mushroom Painting
Mushroom – Sand
Mushroom – Sea Water
And other

Orthographic Drawings (engaging with the architectural discourse, yet also challenging the static character of such representation – the drawings also communicate time, change, fungi growth):
Site Plan 1:3000
Site Section 1:3000
Multiple Plans of a particular island 1:1000
Multiple Plans of a building on the particular island 1:100
Multiple Sections of a particular island 1:1000
Multiple Sections of a building on the particular island 1:100
Multiple Elevations of a building on the particular island 1:100
Construction Detail Section through a building element (a wall) 1:5

Axonometric Drawing of the entire building on one particular island

Visualisations (visualising the possible future, working in series and from points of view of different actors)

Animations (as a tool and dynamic representation):
Islands formation animation
Building construction animation
Fungi growth animation
Institution establishment animation

Models (as a tool and representation of relations):
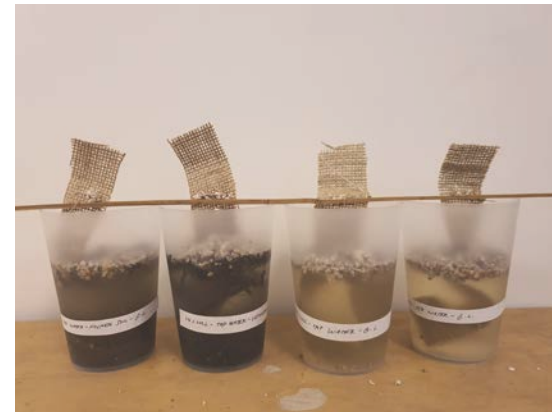Site model 1:3000
Construction Element model 1:50

Photographs:
Site – underwater, above the water
Documenting experiments
Documenting design process

Diagrams (as a tool and communication of concepts and relations):
Process - tool diagrams
Technical diagrams
Diagram of resources
Diagram of institution building

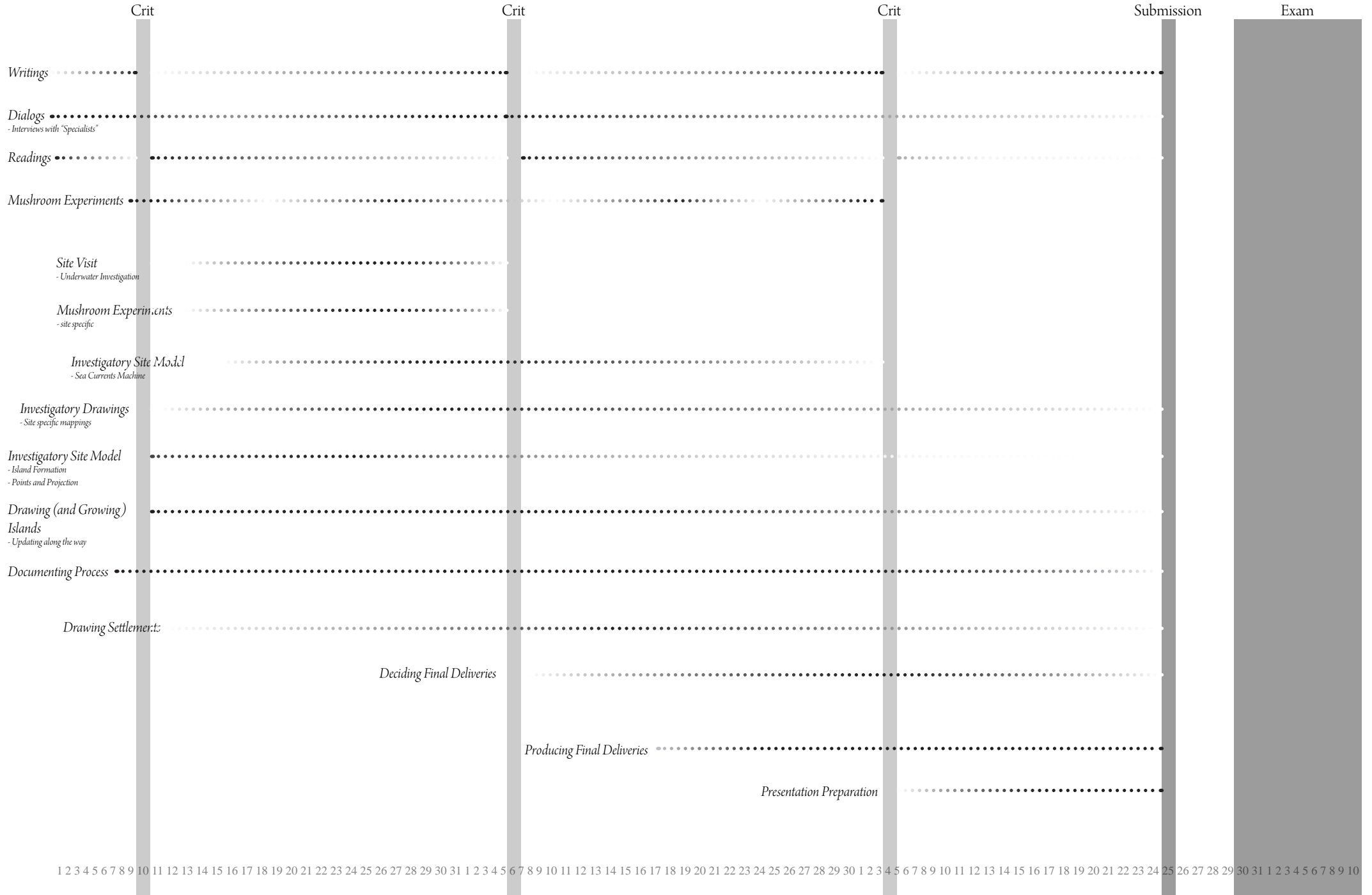Writings (informing the proposal, presented as booklets):
Writing Architecture – The Architecture of General Anaesthesia
Precarious Planning – updated writing

Crit   Crit   Crit   Submission   Exam

Writings

Dialogs
- Interviews with "Specialists"

Readings

Mushroom Experiments

Site Visit
- Underwater Investigation

Mushroom Experiments
- site specific

Investigatory Site Model
- Sea Currents Machine

Investigatory Drawings
- Site specific mappings

Investigatory Site Model
- Island Formation
- Points and Projection

Drawing (and Growing)
Islands
- Updating along the way

Documenting Process

Drawing Settlements

Deciding Final Deliveries

Producing Final Deliveries

Presentation Preparation

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10

Rattan 4,5mm

Hemp hessian fabric

Weave Structure

Fig.14: Mushroom Stones - Olmec.

I have weaved The Mushroom Hat support from rattan and hemp fabric. Then created a sandwich, which was subsequently filled with substrate inoculated with Ganoderma lucidum, referred to as Reishi. Both ratan and hemp is an ideal food-source for the mushroom. Throughout the first stages of its growth, the scent of the Mushroom Hat reminds us of mushroom picking in a lush forest. In the later stages the Mushroom Hat smelled quite like rotten apples. During its fruiting stage the colours darken and gradually turn black.

Fig.15: Eileen Agar wearing her *Ceremonial Hat for Eating Bouillabaisse.*

Before sterilization.

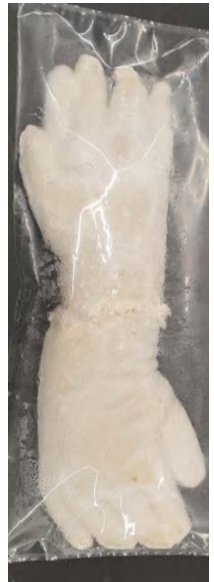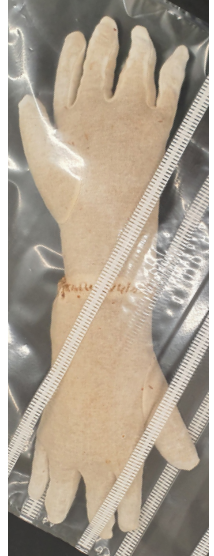One week after inoculation - kept in an incubator.

One month after inoculation.

The Mushroom Hat sandwich.

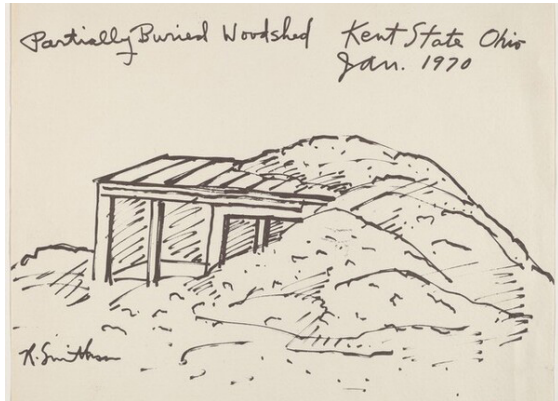

The Glove construction and growth process.

Fig.16: *Partially Buried Woodshed,* 1970, Robert Smithson - lithograph on wove paper.

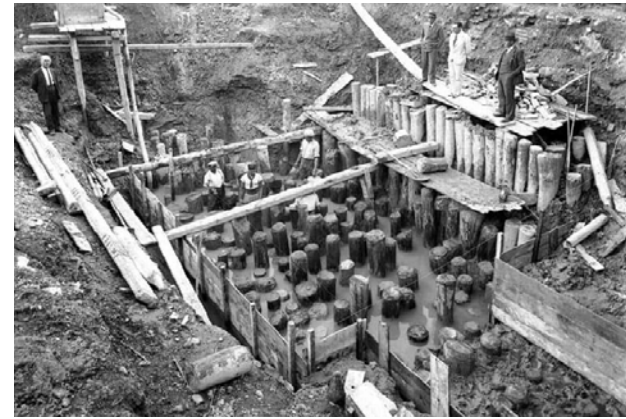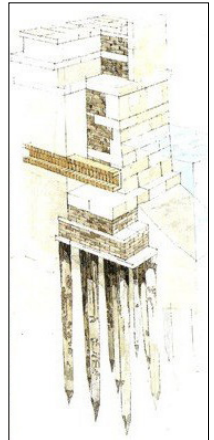Fig.17,18: *Partially Buried Woodshed,* 1970, Robert Smithson - photograph (photo-gelatin silver).

Fig.19,20,21: Venetian foundations.

The precarious tent on Saltholm.

Bibliography

By & Havn. "Lynetteholm." https://byoghavn.dk/lynetteholm/.

Colomina, Beatriz. *X-Ray architecture*. Zürich: Lars Müller Publishers, 2009.

Crouzet-Pavan, Elisabeth. *Venice Triumphant, The Horizons of a Myth.* Baltimore: JHU Press, 2005.

Despret, Vinciane. "The Becoming of Subjectivity in Animal Worlds." *Subjectivity* 23, no. 1 (2008): pp. 123-139.

Gilbert, Scott F. "A Symbiotic View of Life: We Have Never Been Individuals." *The Quarterly Review of Biology* 87, no.4 (2012). http://www.jstor.org/stable/10.1086/668166 .

Groys, Boris. "Self-Design and Aesthetic Responsibility." *e-flux Journal* 7, (June-August 2009). https://www.e-flux.com/journal/07/61386/self-design-and-aesthetic-responsibility/.

Hjerrild, Kim. "Kandidat til borgerrepræsentationen i København for Alternativet: Byudviklingen tager demokratiet som gidsel. " *Politiken*, Nov 17, 2017. https://politiken.dk/debat/kroniken/art6209572/Byudviklingen-tager-demokratiet-som-gidsel.

Københavns Kommune. "Lynetteholm." https://www.kk.dk/politik/politikker-og-indsatser/bolig-byggeri-og-byliv/lynetteholm.

Larsen, A. Kjeld. "Høringssvar vedrørende VVM Miljøkonsekvensrapport for Lynetteholm." *Rådet for bæredygtig trafik*, January 22, 2021. https://baeredygtigtrafik.dk/undermappe/wp-content/uploads/2021/01/Hoeringssvar-Lynetteholm-RBT-januar-2021.pdf.

Mangor, Karsten. "Kystspecialist kritiserer Lynetteholms udformning: Man har ikke forstået området, før man gav landskabsarkitekterne lov at boltre sig." Interview by Marie Kraul. *Byrummonitor,* June 18, 2021. https://byrummonitor.dk/Nyheder/art8247595/Man-har-ikke-forst%C3%A5et-omr%C3%A5det-f%C3%B8r-man-gav-landskabsarkitekterne-lov-at-boltre-sig.

Mørk, A. E. *City of the Anthropocene*. Urban Studies Master's Thesis. Malmö University, 2021.

Nyvold, Mads. "Our houses, cars and electronics are dependent on sand." Zetland (2017). https://www.zetland.dk/historie/s8aLAVrL-moGP3xxV-81297?fbclid=IwAR2cHSKxPS9mG0dqFq6cC8s3bbj2ZioJtQ2wxUWq1KyVPtU4_NbRSi4xZn0.

Ogden, Laura. *Swamplife : People, Gators, and Mangroves Entangled in the Everglades*. Minneapolis: University Of Minnesota Press, 2011.

Psarra, Sophia. *The Venice Variations*. London: UCL Press, 2018.

Sheldrake, Merlin. *Entangled Life*. London: Random House, 2021.

Strauss, Benjamin et al. "Unprecedented threats to cities from multi-century sea level rise" *Environmental Research Letters* 16, no. 11 (2021). https://iopscience.iop.org/article/10.1088/1748-9326/ac2e6b.

Tsing, Anna Lowenhaupt. "A Threat to Holocene Resurgence Is a Threat to Livability." In: *The Anthropology of Sustainability,* edited by Marc Brightman and Jerome Lewis, pp. 51-65. New York: Palgrave Macmillan, 2017.

Tsing, Anna Lowenhaupt. "On Nonscalability: The Living World Is Not Amenable to Precision-Nested Scales". *Common Knowledge* 18, no. 3 (2012): pp. 505-524.

Tsing, Anna Lowenhaupt. *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. Princeton: Princeton University Press, 2015.

Vesela, Tereza. *Architecture of General Anaesthes*ia. Writing Architecture - Political Architecture: Critical Sustainability. Royal Danish Academy, 2022.

Zimmer, Carl. "Getting To Know Your Inner Mushroom." *National Geographic* (2013). https://www.nationalgeographic.com/science/article/getting-to-know-your-inner-mushroom.

Figures

Fig. 1   Mufti, Nassir. "*Multispecies Cat's Cradle*". 2011, drawing. https://www.researchgate.net/figure/Multispecies-Cats-Cradle-by-Nassir-Mufti-2011_fig1_338115550#:~:text=In%20this%20essay%20I%20will,justice%2C%20technoscience%20and%20earthly%20survival.

Fig. 2   Vesela, Tereza. "*Lynetteholm Atlas*". author's paper collage.

Fig. 3   OWI, Arkitema, Tredje Natur. "*Lynetteholm from bird eye view*". Date unknown, visualisation. https://byoghavn.dk/lynetteholm/.

Fig. 4   By & Havn. "*The placement of Lynetteholm as proposed by By & Havn.*" Date unknown, drawing. https://www.kk.dk/politik/politikker-og-indsatser/bolig-byggeri-og-byliv/lynetteholm

Fig. 5   Farooqi, Joveria. "*Microscopic image of Candida auris*". Date unknown, photograph. https://www.wnycstudios.org/podcasts/radiolab/articles/fungus-amungus..

Fig. 6   Wiechula, Arthur. "*Grafting Diagram*". Date unknown, diagram. https://richardkarty.org/2016/08/.

Fig. 7   Le Corbusier. "*Five Points Diagram.*" 1923, diagram. https://cz.pinterest.com/pin/307933693251104934/.

Fig. 8   UMA. "*Mushroom Hut.*" 2021, hut made out of mushrooms. <https://www.u-m-a.se/filter/Featured/MUSHROOM-HUT?fbclid=IwAR3kG-QzduIj7lds4jMD0kk5di3niVqTYz2REZCo5mjDx6T5RTSi3rsOrWg>.

Fig. 9   Vesela, Tereza. *"Photographs of non-human actors transporting soil."* author's photographs.

Fig. 10   Eggen, Jakob et al. *"Venezias Territoriale Udvikling"*. Date unknown, drawing. In *Venezia for Kunstakademiets arkitektskole, institut 3, sektion E.* Copenhagen: Kunstakademiets trykkeri, 1978.

Fig. 11

Fig. 12   Vesela, Tereza. *"Map of the site."* author's painting with projection.

Fig. 13   Rukwaro, R.W. , Mukono, K.M. *"The spatial arrangement of Maasai village in Kenya."* In Architecture of societies in transition — the case of the Maasai of Kenya. In Habitat International 25, no. 1 (2001). https://www.sciencedirect.com/science/article/abs/pii/S0197397500000308.

Fig. 14   Vesela, Tereza. *"Floating island of Ganoderma lucidum."* author's installation - *Ganoderma lucidum*, saline water, rattan ring.

Fig. 15   Author unknown, "Mushroom Stone." date unknown, stone sculpture. https://www.mushroomstone.com/breakingthemushroomcode.htm

Fig. 16   Agar, Eileen. *"Ceremonial Hat for Eating Bouillabaisse."* multimedia hat, 1936. https://modernistreviewcouk.wordpress.com/2021/07/02/the-evolution-of-eileen-agars-ceremonial-hat-for-eating-bouillabaisse/.

Fig. 17, 18   Smithson, Robert. *"Partially Buried Woodshed."* lithograph on wove paper, 1970. https://www.nga.gov/collection/art-object-page.73895.html.

Fig. 19   Smithson, Robert. *"Partially Buried Woodshed."* photograph (photo-gelatin silver), 1970. https://rudygodinez.tumblr.com/post/54093530968/robert-smithson-partially-buried-woodshed-1970.

Fig. 20, 21   Author unknown, *"Venetian Foundations."* date unknown, photograph. https://venicewiki.org/wiki/Immagine:GN000179.JPG.

          Author unknown, *"Venetian Foundations."* date unknown, drawing.https://sites.google.com/site/engineeringvenice/.

Tereza Veselá
*Ivancice, Czech Republic; 31. 5. 1997
Bispebjerg Parkallé 51
2400 København NV

(+420) 733 736 580
tkvesela@gmail.com
issuu.com/tvesela
https://www.instagram.com/vesela_tereza

EDUCATION

2020-now
Royal Danish Academy, Copenhagen
Political Architecture: Critical Sustainability, Niels Grønbæk

2018 - 2020
University of Westminster, London
Architecture VI, Dr. Victoria Watson

2016 - 2018
The Academy of Arts, Architecture & Design, Prague
Architecture II, Prof. Ing. arch. Ivan Kroupa and Ing. arch. Jana Moravcova

WORK
EXPERIENCE

January 2020
Forge Architects; London, United Kingdom
Short period internship allocated by the University of Westminster

Summer 2019
Maura Architects; Brno, Czech Republic
Architectural - environmental analysis and a design concept of housing in Holasice

Summer 2019
Residio.tech; San Francisco, USA
Proposal for ADU as an affordable container student housing

July 2017
Rosnicka music festival; Svitavy, Czech Republic
Art installations

WORKSHOPS

January 2018
The municipality of Vysoká Pec, Czech Republic
Proposal for a new retirement home

October 2017
The municipality of Mesice, Czech Republic
Proposal for a new urban plan

September 2017
Workshop Survival, Costa Rica
Studio AII Survival film - selected as part of UMPRUM Architecture Exhibition
in Winternitzova vila, Prague

Workshop City and Disaster; Medellin, Colombia
Moravia urban plan in collaboration with Pontifical Bolivarian University

SOFTWARE

Very Good Proficiency
Autodesk Autocad; V-ray; Adobe PS, Al, Id, Pr

Basic Proficiency
Rhinoceros; Vectorworks; Sketchup

REFEREES

Doctor Watson Architects
Dr Victoria Watson
+44 7954 585423; V.Watson@westminster.ac.uk

Ivan Kroupa Architekti
Prof. Ing. arch. Ivan Kroupa
+420 775 106 816; ivankroupa@ivankroupa.cz

Residio.tech
Marek Hovorka
+420 608 237 249; marek@hovorka.com

44