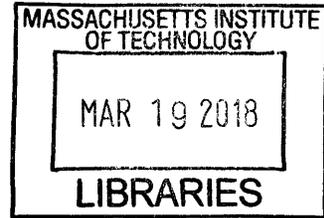


Urban Detox

by So Yeon Lim

**B. S. Korean Medicine
Kyung Hee University, 2013**



ARCHIVES

Submitted to the Department of Architecture
in partial fulfillment of the requirements for the degree of

Master of Architecture of the
Massachusetts Institute of Technology.
February 2018

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Signature redacted

Signature of Author _____

Massachusetts Institute of Technology
January 18th, 2018

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Urban Detox

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Submitted to the Department of Architecture
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requirements for the degree of Master of Architecture

Abstract

Seoul is a busy metropolitan city. It provides opportunities and excitements for its dwellers. However, its dwellers are also more vulnerable to detrimental stress. Combined with social isolation, it is a significant mortality factor—as serious as heavy smoking or obesity. In Seoul, the social support network level ranked the lowest among OECD countries survey. This is an issue that requires a medical approach.

Historically, spaces for treatment have been more than just ‘curing machines’ within the city. These spaces have been pilgrimage destinations, or a retreat with clean air. More recent approaches are to redefine treatment spaces as the core of local communities or a platform for the larger communities to share common concerns and provide supports. Learning from the precedents, I propose a prescription for the current situation to expose one to alternative modes of living, to nature, and to significantly engage in communities. The destination of this getaway is Jeju island, an agriculture-based scenic island, located between South Korea, Japan, and China.

This program will provide a platform for the participants to stay at host houses for four weeks to experience an alternative to urban life. Accommodations and food are provided in exchange for cooperating with local agricultural industries including tangerine farming and horse farming. Due to the geology of the island, its settlements are distributed around its perimeter in clusters. These villages will be the seed level basis for a community building architecture, enabling participants to engage in the social network both with locals and other transplants. These villages are connected by an existing walking trail; this trail will be a key element to facilitate community building at a larger scale and to stitch multiple villages together. The activated and transformed trail will provide the backdrop for shared activities such as concerts, lectures, or flea markets for the city. This thesis explores the creation of spaces that can facilitate community building among the villages by taking advantage of an existing path through architectural interventions.

Thesis Advisor: Rafi Segal, PhD
Title: Associate Professor of Architecture and Urbanism

Acknowledgements

I would like to thank my thesis advisor, Rafi Segal, for providing insight and being always supportive. I also would like to show my gratitude to Alex Anmahian and Timothy Hyde, for sharing their wisdom throughout the research and design process. I am also grateful to Lorena Bello, who was always encouraging.

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Introduction

Background

More than a half of the world population are city-dwellers today and the proportion is still growing. People admire city living and it seems that it does offer better standards of living for their citizens. There are more job opportunities, better educational facilities and infrastructure and high-level medical facilities.

Despite the benefits of urban environment, however, people living in the cities are undeniably also exposed to various sorts of dangers. Recently researches suggest that people living in big cities are more susceptible to health problems, namely obesity, infertility and depression. Other researches address concerns about the mental health of urban dwellers – such as anxiety disorders (21% higher in urban living), mood disorders (39% higher) and schizophrenia. The lifestyle diseases including diabetes, hypertension, high blood pressure, high cholesterol and arthritis are also thought to come with urban lifestyle such as burnout, lack of exercise, and bad eating habit.

These not only lower the quality of life of individuals, but also result in the social cost.

Urban Illness, or Sick cities

Multiple studies suggest the relationship between urban dwelling and certain diseases. Then, what would be the mechanism and pathology of these urban illnesses?

(1) Relentless stress

The WHO has declared stress as one of the major health challenges of the 21st century. The physiological stress response is necessary and beneficial for mammals from the evolutionary standpoint. The prompt processing of any threats such as a predator or food insecurity leads to the surge of certain hormones such as cortisol and adrenaline, which raises the blood sugar and promotes blood flow redistribution to muscles and lungs so that they can deal with the problems better and more likely to survive. However, the stress-response mechanism was designed to generate boosted energy for a short term. If the stressful stimuli continue without switching off, the prolonged high level of stress-hormone can cause HBP and suppress the immune system. Also, the risk of psychiatric diseases such as depression and psychosis is known to raise or be triggered by stress factors according to related researches.

The relentless stressors here include; the noise, the lack of open spaces, pollution, higher cost of living, hectic lifestyle, the feeling of relative deprivation and longer working hours than their rural counterparts.

(2) Isolation in the crowd

When dealing with the stressors, it seems that the density of cities does not help. According to the German researcher Meyer-Lindenberg, urban dwellers commonly experience the lack of sense of belonging, or feel their being different from their neighbors in terms of socioeconomic status or ethnicity. Dr Mazda Adli, also a German researcher and clinician, explains this phenomenon with a theory, implicating the paradoxical urban mixture: loneliness in crowds. The density of cities rather intensifies and aggravates the negative aspects of city life by creating social environment of isolation and continuously reminding inequality.

(3) Perpetuation – negative feedback, vicious circle

People are attracted to cities seeking the benefits they provide. Along with the advantages, they situate people also with all the stressors to deal with ceaselessly. There is no stop for reset and the physiological response does not finish the way it is supposed to. Once the prolonged stress response crosses the threshold and is combined with the isolation in the crowd, it transforms itself into the risk factor of various diseases as serious as other widely accepted factors such as smoking, drinking and obesity.

Metropolis Seoul

Seoul is the capital city of South Korea. Its population is almost ten millions, and it is the economical, political and cultural hub of the country and East Asia. The glamorous achievements of the city are even more impressive when considering how short period of time it got after the Korean civil war. Urbanization of the country and densification of metropolitan Seoul happened in short period of time of decades, considering that other developed countries got centuries.

On the other hand, however, the fast urbanization also came with the intensification of urban issues, including environmental pollution, housing issues, sanitation and noises, which all are urban stressors. In addition to this, another problem of dwelling in urban environment, the loneliness in the crowd, is even more serious in Seoul. According to OECD better life index based on surveys, South Korea ranked the lowest in the ‘Community’ topic, which is to gauge social network for emotional and material support in good and bad times, scoring 0.0 out of 10.

Considering how the stressors of city life could be a detrimental risk factor for multiple diseases, and the lack of community aggravate them, the urban life in Seoul, with the combination of the two, would benefit from a medical approach.

The populations of concern

Even under the same urban hectic environment of Seoul, there is a high-risk group of people, who are more susceptible to the urban illnesses. The study by Florian et al(2011) suggests the relationship between city living and upbringing with neural social stress processing. In this study using fMRI to see the activation of related parts of brain to different stimuli representing social stress processing, the starting age of living in cities was a significantly relevant factor of capability to deal with stresses.

This research helps to narrow down who is the most vulnerable group in Seoul, Korea. Throughout the urbanization process of decades, Korean people from the rural areas have moved to larger cities, and these people who migrated are now the middle-aged. While they have spent their early years in rural or town sized environments, their child generation were more likely to be born and have grown up in larger cities. These child generation who were born in 80s and 90s and reached their 20s and 30s at the moment who were exposed to the city environment since early age is the most vulnerable to pathogenic urban stressors. This generation of Koreans who are most susceptible to different stressors are the target group of this thesis proposal - detoxification of urban lifestyle by temporary relocation.

Spaces for treatment - precedent study

Then, how the spaces for treatment been like in the past?

The concept of 'hospital' is rather recent idea. By the time when temples served the function, people were willing to take time to get to there. They were located at the most sacred and separated places and were the destination of pilgrimage. Before the scientific evidence and materiality being the scale and spaces for treatment being no more than 'curing machines,' the power of natural elements such as water, air and light had been knowingly used as the powerful tool for cure. Even after hospital had become the only and set typology of medical spaces, there were trials such as Sanatoriums that took advantage of the healing power of natural elements, getaway from daily life and refreshing atmosphere. More recently, the idea of spaces for treatment is evolving again beyond hospital as a curing machine. Butaro hospital by Mass deign redefines treatment spaces as the core of local communities. Maggie centers in multiple locations in Europe and the US provides a platform for patients suffering cancers to form larger communities to share concerns, information and provide supports. The Atmos Selfness resort proposed by Cool Himmeblau even expands the definition of treatment spaces and adds components such as nature, leisure and art that had been denied since the concept of hospital as a machine emerged.

Detoxification

Learning from the precedents, I propose an alternative experience as an antidote for the current situation. As a prescription to the perpetuated cycle of pathogenic urban life style, combination of extensive exposure to the stressors and isolation, this program takes three steps for detoxification - first, breaking the cycle of stressors, second, getting away physically from the familiar environment, and last, engage with and expose oneself more significantly with people and nature, for the fundamental healing.

(1) Breaking the cycle

If the routine life has been trapped in a vicious cycle that only produces negative energy that gives unbeneficial feedback to repeat, it needs to be discontinued. Travelling has been an old and effective solution for refreshment. Thomas Mann, the novelist, describes in his book 'Magic Mountain' that 'Space, as it rolls and tumbles away between him and his soil, proves to have powers normally ascribed only to time; from hour to hour, space brings about changes very like those time produces, yet surpassing them in certain ways.

Space, like time, gives birth to the forgetfulness, but does so by removing an individual from all relationships and placing him in a free and pristine state – indeed, in but a moment it can turn a pedant and philistine into something like a vagabond.

Time, they say, is water from the river Lethe, but

alien air is a similar drink and if its effects are less profound, it works all the more quickly.'

(2) Nature

Though the healing effect of the exposure to the nature is widely studied and accepted, cities including Seoul are undeniably short of green spaces. Researches have indicated that exposure to the nature provides urban dwellers many advantages, including improving mood and memory, and alleviating ADHD in children. Not to mention that it is well supported that the beneficial effect of green environment owes to the clean air and substances such as phytoncide, there are other researches that suggest its psychological effect - a recent study in UK has shown the correlation between the scenic-ness of where people live and their mental health/happiness by trying to quantify these factors.

(3) Community

The close distance among people does not necessarily help to form a community that can physically and mentally support individuals, which means the situation needs a more fundamental approach. In opposition to the city life where the lives of individuals are fragmented and disconnected from each other, sharing experiences and modes of production can promote to form a bond between people, which can continue and last even after.

Testbed - Jeju island

The destination of this getaway is Jeju island, an agriculture-based scenic island, located between South Korea, Japan, and China.

This program will provide a platform for the participants to stay at host houses for four weeks to experience an alternative to urban life. Accommodations and food are provided in exchange for cooperating with local agricultural industries including tangerine farming and horse farming. Due to the geology of the island, its settlements are distributed around its perimeter in clusters. These villages will be the seed level basis for a community building architecture, enabling participants to engage in the social network both with locals and other transplants. These villages are connected by an existing walking trail; this trail will be a key element to facilitate community building at a larger scale and to stitch multiple villages together. The activated and transformed trail will provide the backdrop for shared activities such as concerts, lectures, or flea markets for the city.

This thesis explores the creation of a backdrop that can facilitate community building among the villages by taking advantage of an existing path through architectural interventions.

Research

Urban life as a medical issue

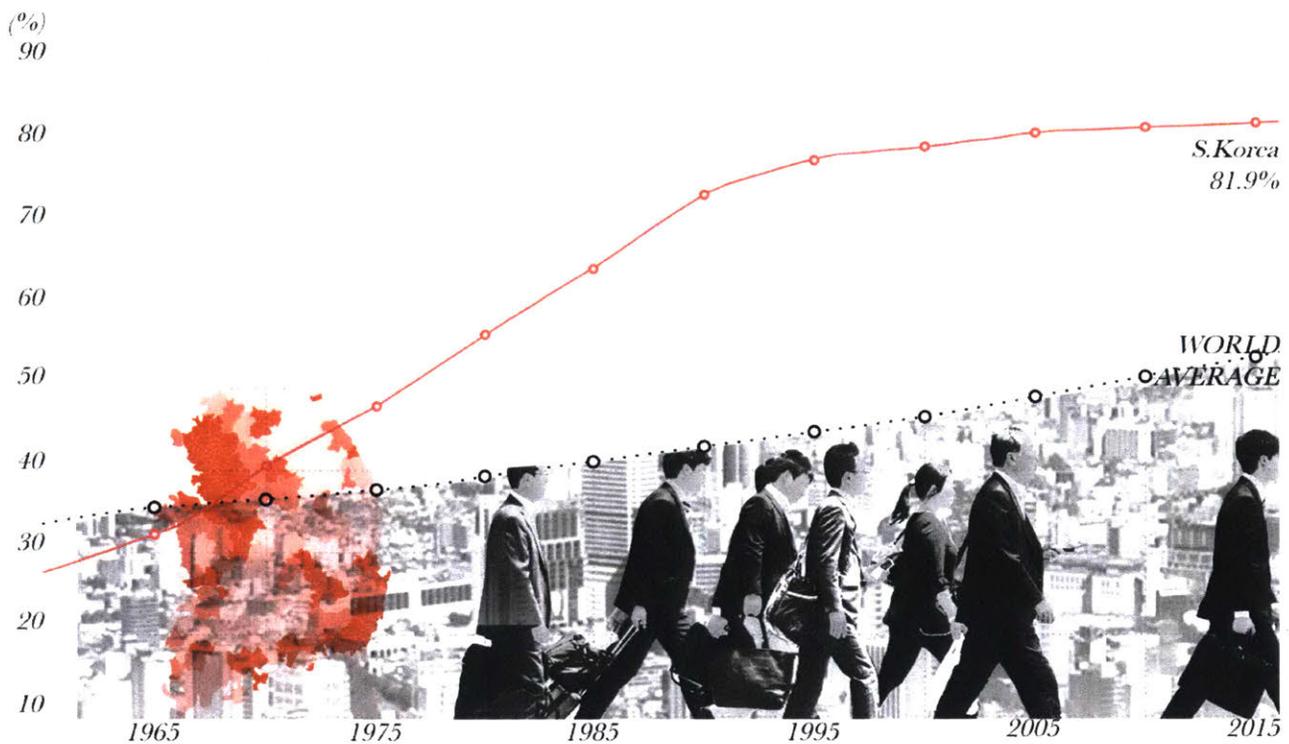


Figure 1.
Proportion of population living in an urban area
(%), 2010

According to World Health Organization statistics 2010, 81.9% of South Korean population is dwelling in urban area.

It should be noted that the urbanization rate of the country, which is significantly higher than that of the world average of 53%, was achieved in a short period of time of decades compared to centuries in other developed countries.

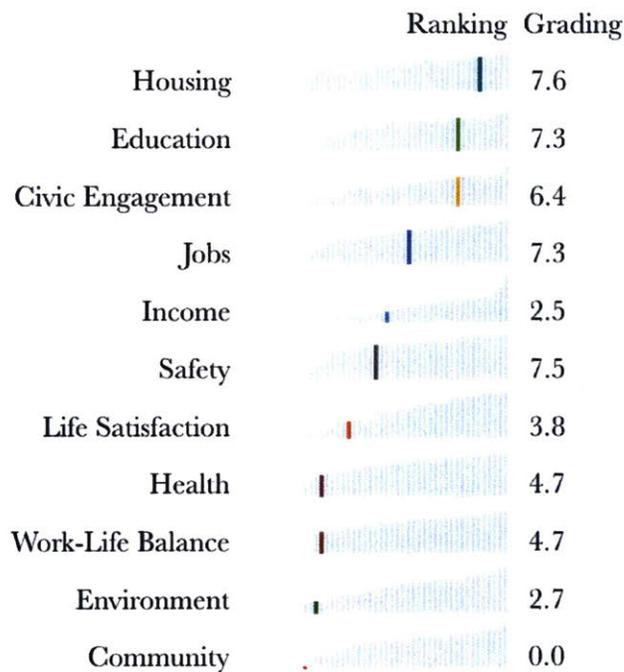


Figure 2.
OECD Better Life Index

The better life survey conducted by OECD shows subjective life scales on different topics, including Health, Environment, and Work-life balance. South Korea ranked the lowest among participating countries in 'Community' to gauge social network for emotional and material support in good and bad times, scoring 0.0 out of 10. In Korea, 76% of people believe that they know someone they could rely on in an time of need, the lowest rate in the OECD, where the average is 89%.

This fragmentation of Korean society in spite of its density is an ironic byproduct of rapid urbanization of the nation.

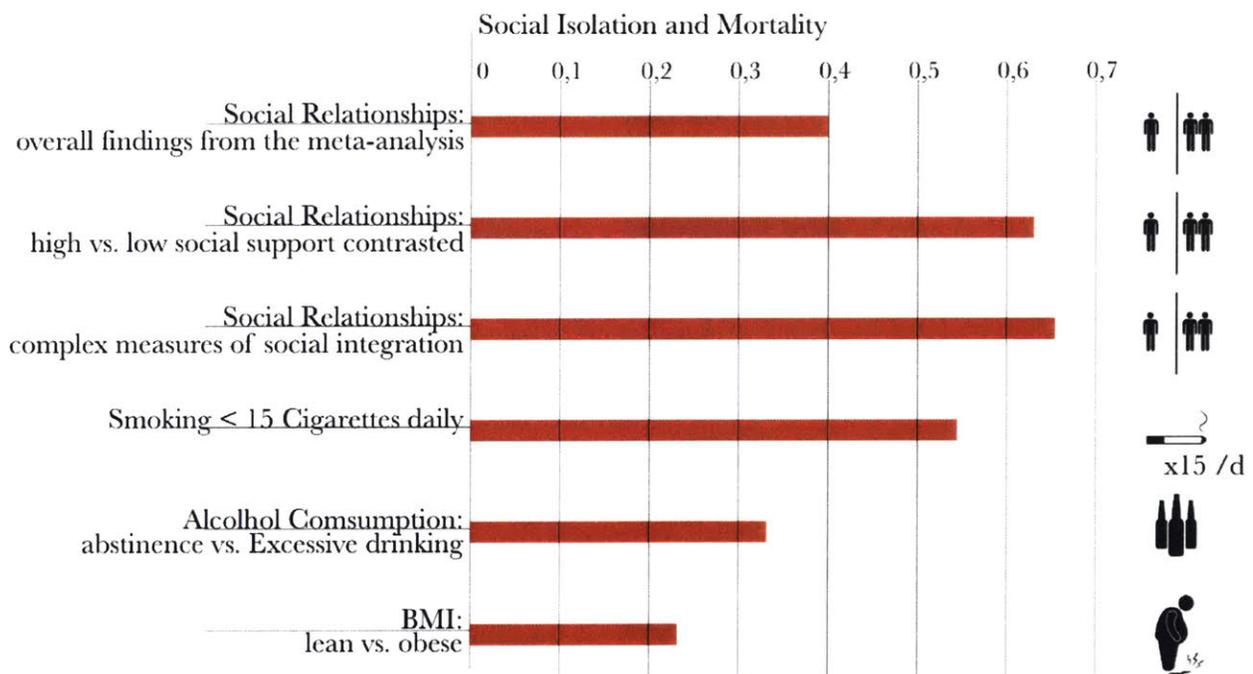


Figure 3. Social Relationships and Mortality Risk

According to Julianne Holt-Lundstad, Social relationships is a significant mortality risk factor. This study suggests that low social supports and the lack of adequate social relationship should be regarded as a serious risk factors as comparable as smoking, diet and exercise.

Social relationships and Mortality Risk : A Meta-Analytic Review.

Julianne Holt-Lunstad, Timothy B. Smith, J. Bradley Layton
PLOS|Medicine,

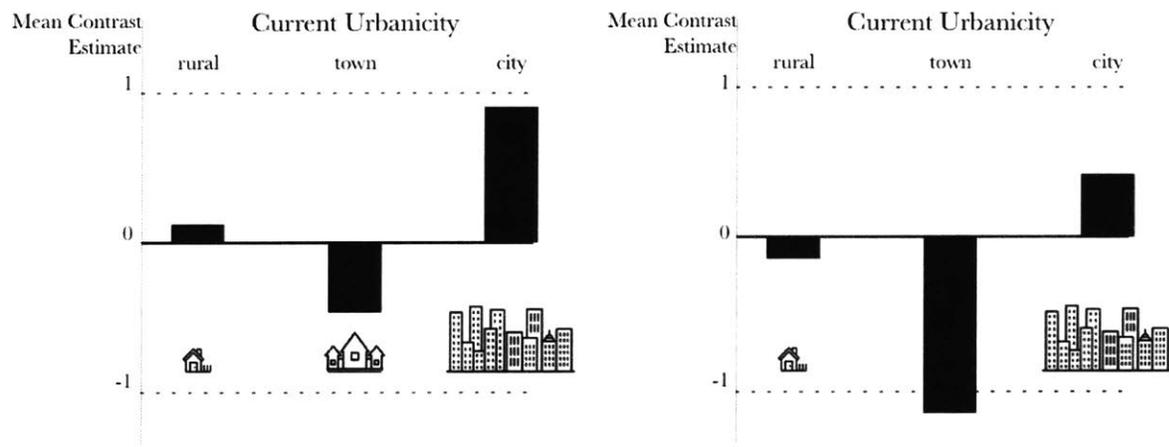


Figure 4. Stress Handling correlation between Amygdala activation and city size

A recent study using fMRI suggests the strong relationship between the current urbanicity and stress management capability. In the series of experiments to see the activation of Amygdala, an area of the brain that contributes to emotional processing, participants from larger cities seemed to be the most vulnerable to the external stress stimuli whereas those who dwell i

Lederbogen, Kirsch, Haddad et al, Nature 2011

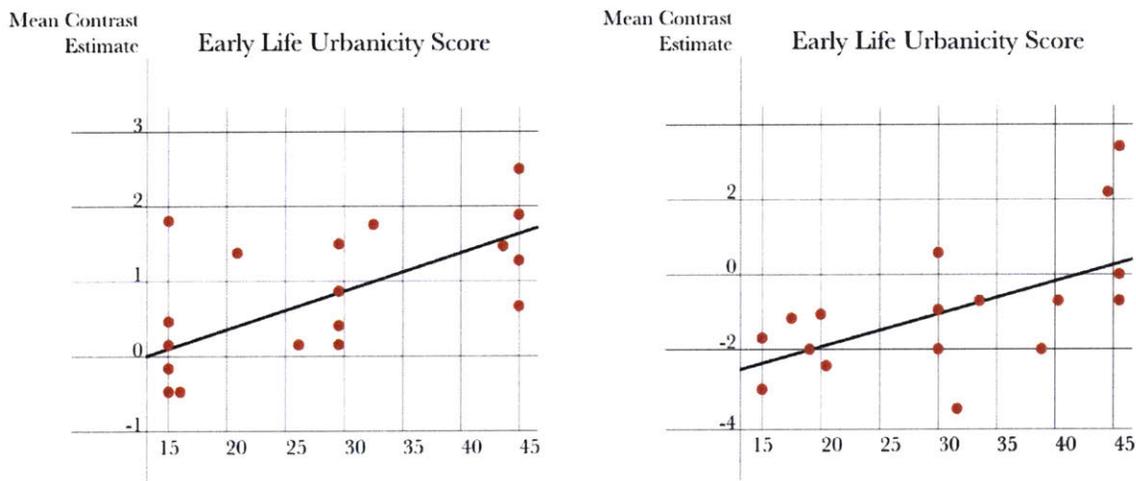


Figure 5. Stress Handling correlation between urban birth and cingulate activation

Also from the same study, it is interesting to mark that there shows relationship between urban upbringing and cingulate activation, which part of the brain is known to be relevant with disorders such as depression and schizophrenia.

City Living and Urban Upbringing Affect Neural Social Stress Processing in Humans.
 Florian Lederbogen, Peter Kirsch, Leila Haddad et al.
 Nature 474, 498-501 (2011)



Figure 6. The most vulnerable

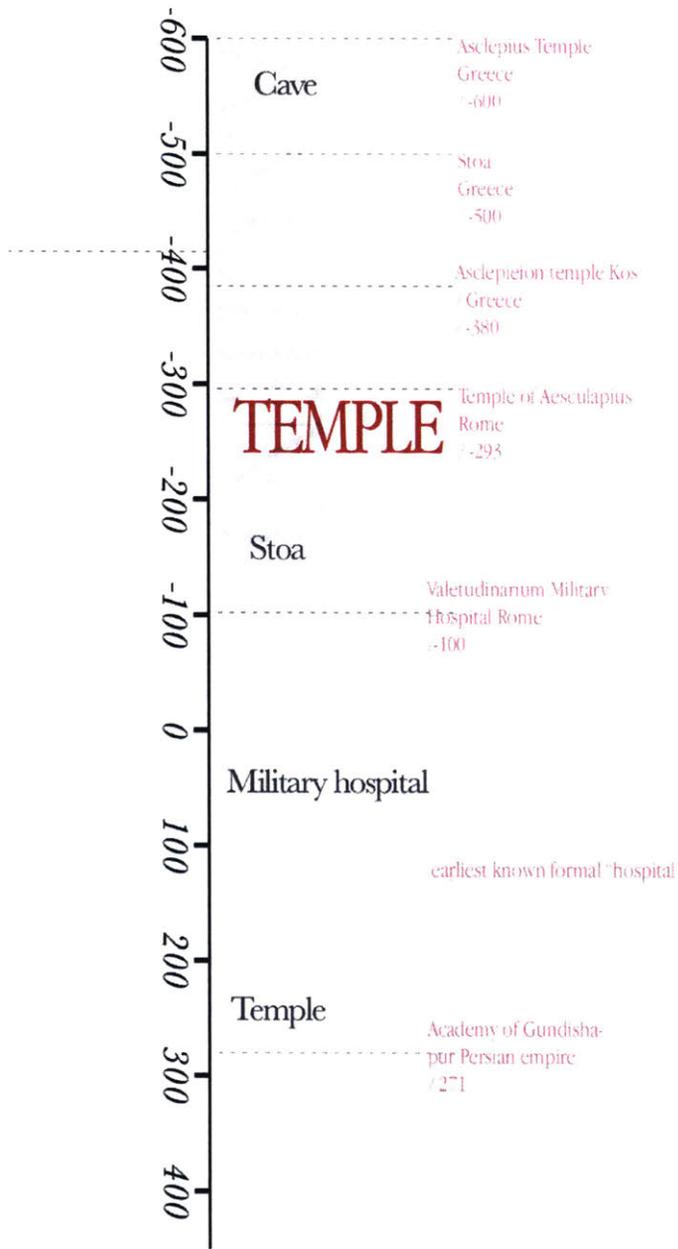
These child generation who was born in 80s and 90s after their parents had migrated into the cities and reached their 20s and 30s at the moment was exposed to the city environment since early age. This generation of Koreans who are most susceptible to urban stressors are the target group of this thesis proposal - detoxification of urban lifestyle by temporary relocation.

Precedents Study

Spaces for Treatment

1. Lineage

Historically, spaces for treatment have been more than just ‘curing machines’ within the city. These spaces have been pilgrimage destinations, or a re-
cluse with clean air. More recent approaches are to
redefine treatment spaces as the core of local com-
munities or a platform for the larger communities to
share common concerns and provide supports.



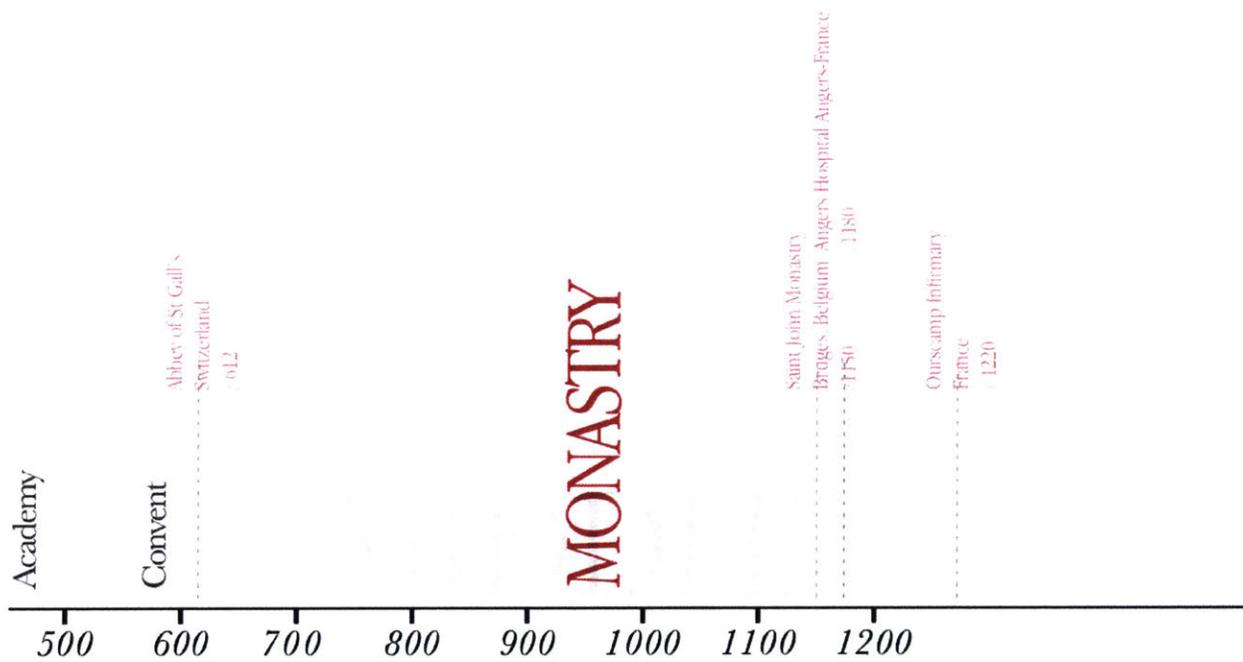
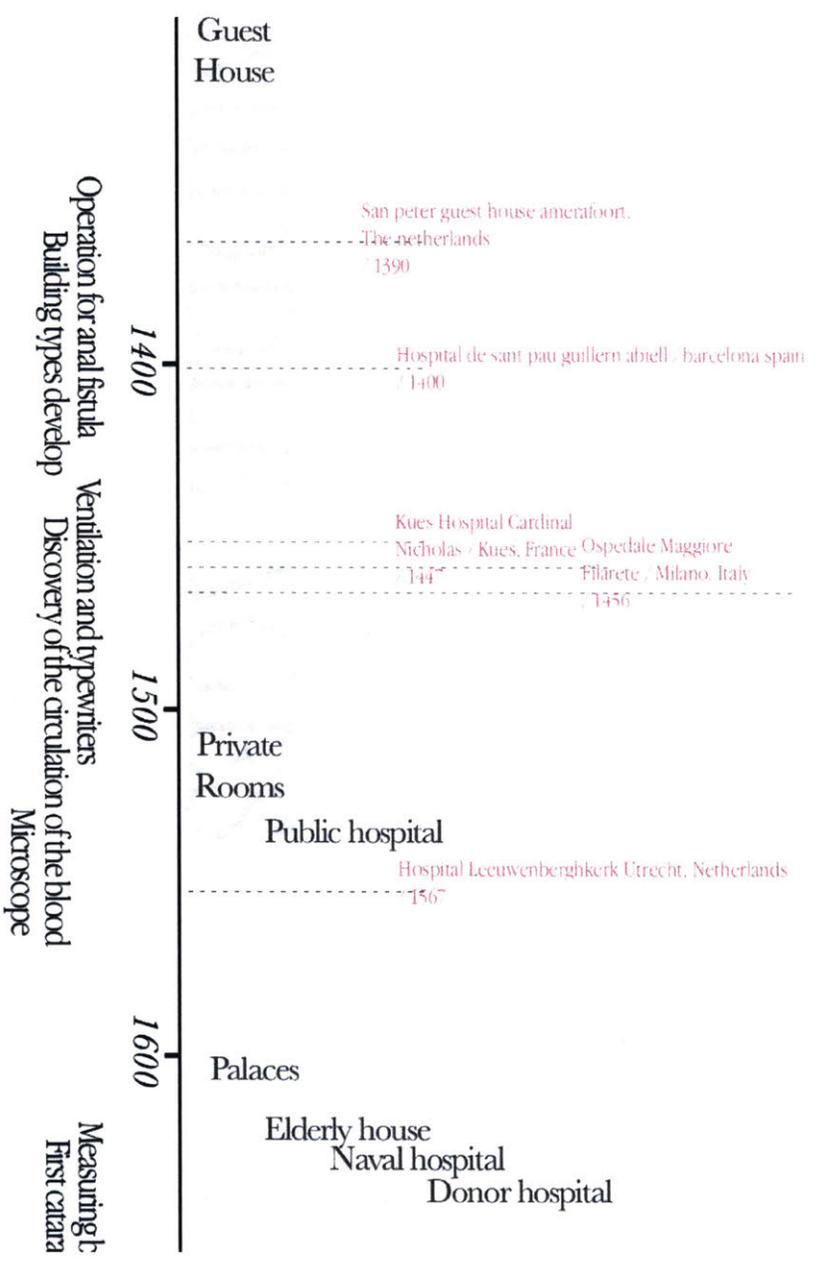


Figure 6-1. Lineage of Spaces for Treatment (600BC to 1300)



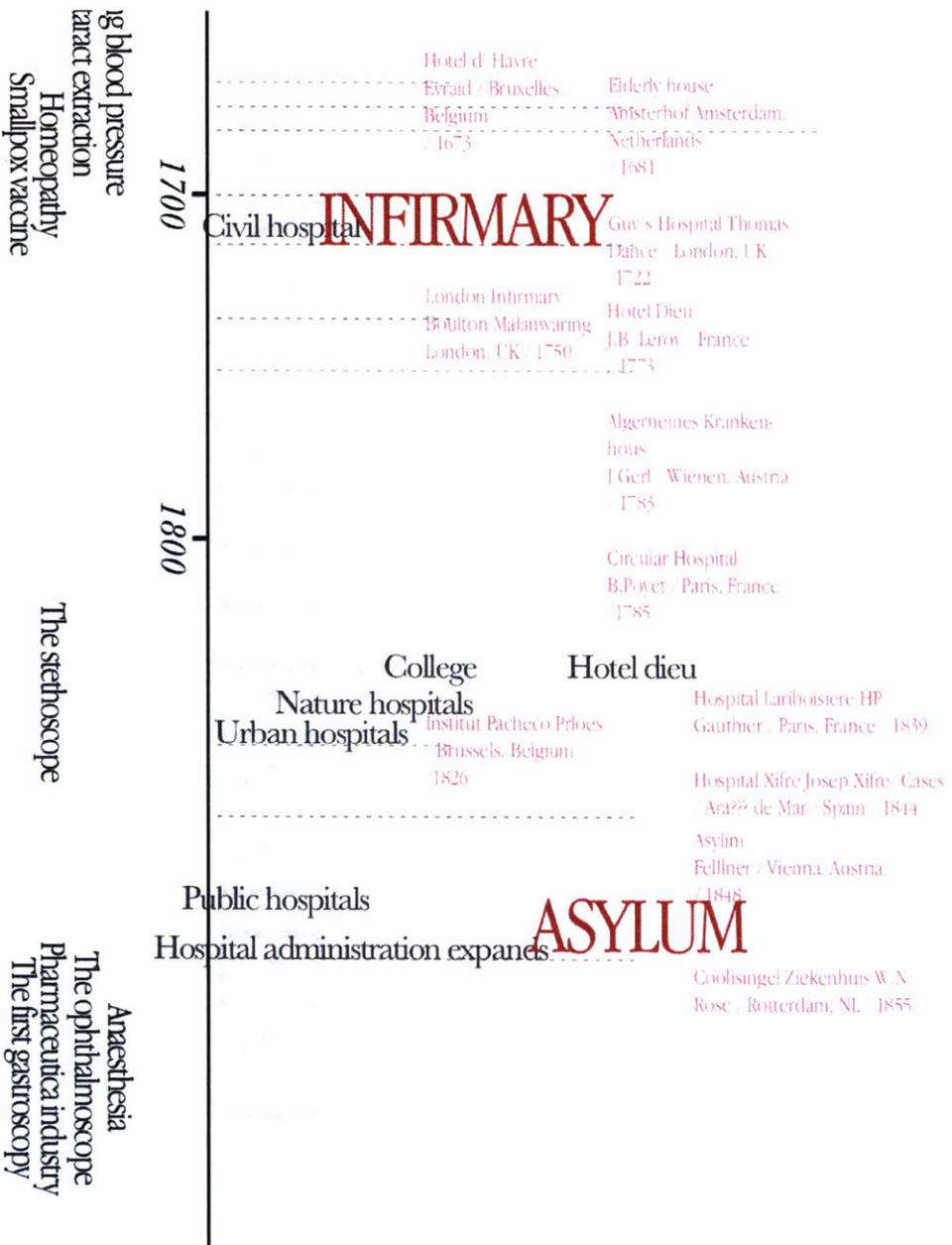
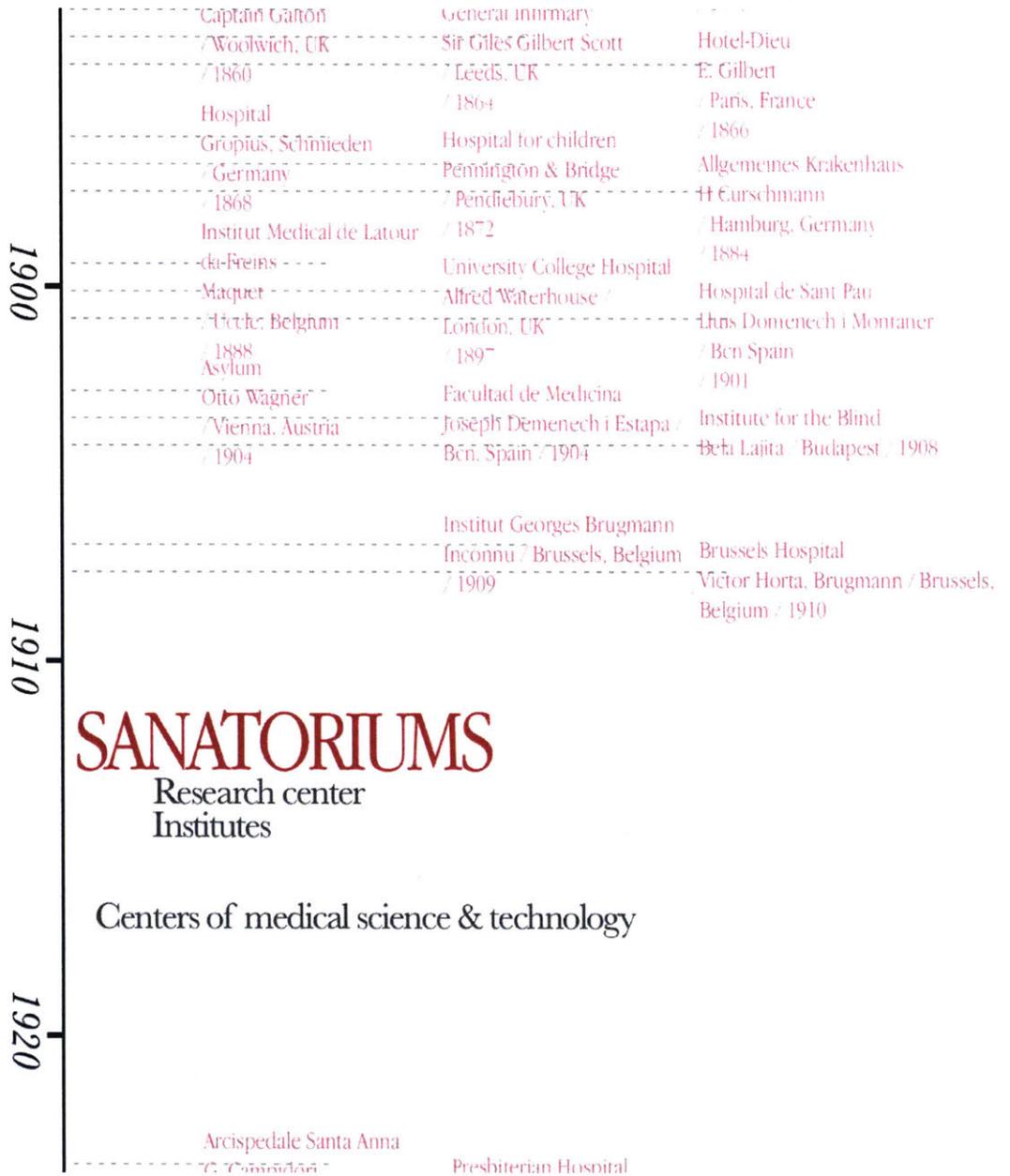


Figure 6-2. Lineage of Spaces for Treatment (1300 to 1800)

Injunctive
 syringe
 sepsis
 Electrocardiograph
 X-rays

Electron microscope
 Iron lungs



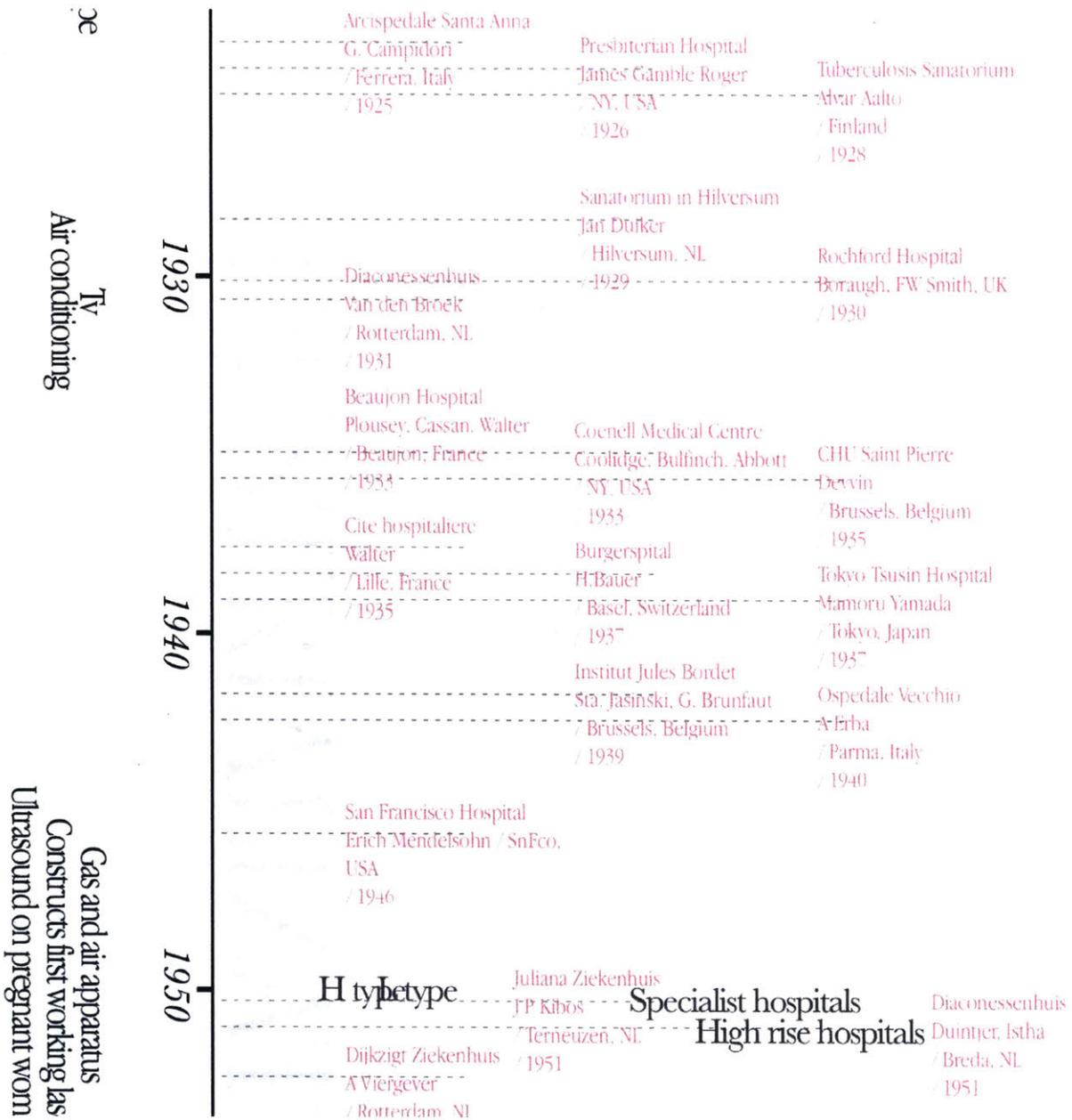
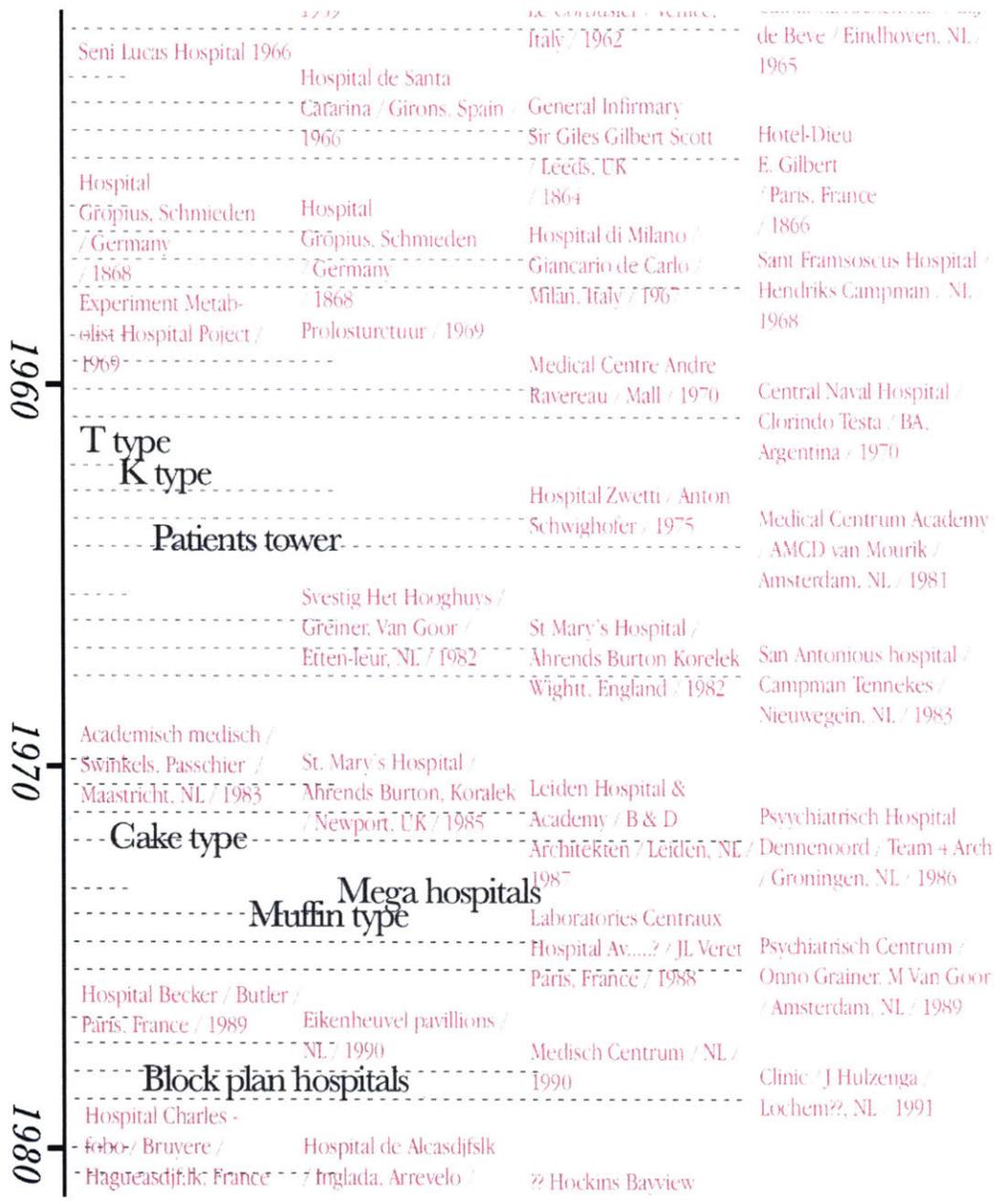


Figure 6-3. Lineage of Spaces for Treatment (1800 to 1950)



Measles vaccine
Aids

Hepatitis b vaccine
Ebola
Smallpox - eradication

Joint replacement surgery
Computer
Mri scan
Ct scan
Plastic surg

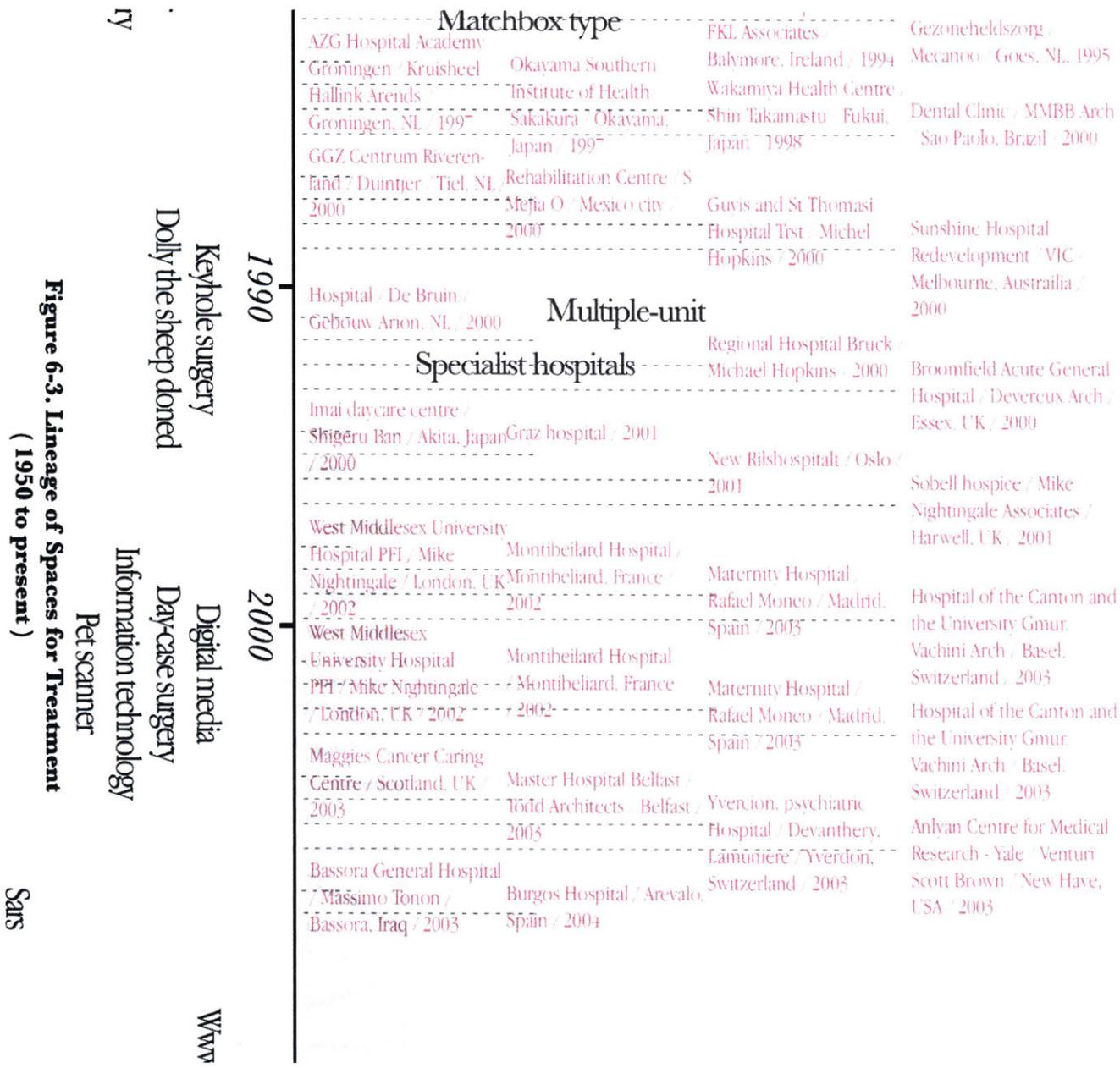
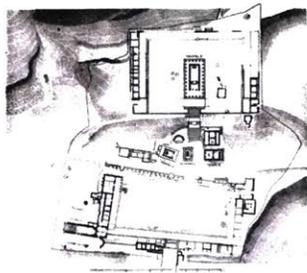


Figure 6-3. Lineage of Spaces for Treatment (1950 to present)

Precedents Study

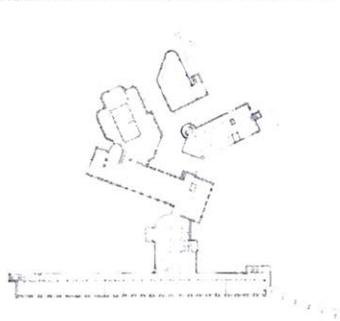
Spaces for Treatment

2. Cases



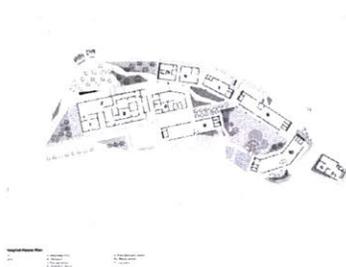
1. Asclepion temple of Kos (3C BC)

- Kos Island
- Pilgrimage destination
- Spiritual and Physical treatment
- Medical Training



2. Sanatorium (19C-20C)

- High altitude
- Open-air treatment, Sunlight therapy



3. Butaro Hospital (2011)

Mass Design

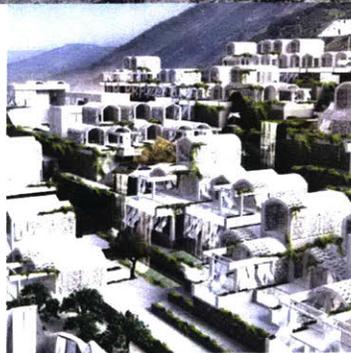
- Open Corridor
- the Core of Local Communities



4. Maggie Center(1955-)

Multiple locations

- Nature
- a Platform for Cancer Patients and Their Family To Form Larger communities
- To Share Concerns, Information and Provide Supports



5. Atmos Selfness Medical Resort
Coop Himmelblau

- Waterfront
- clean air for cystic fibrosis patients
- mediterranean resort



Getaway

Two days of travel separate this young man from his everyday world, especially from what he called his duties, interests, worries, and prospects – separate him far more than he had dreamed possible as he rode to the station in a hansom cab.

Space, as it rolls and tumbles away between him and his soil, proves to have powers normally ascribed only to time; from hour to hour, space brings about changes very like those time produces, yet surpassing them in certain ways. Space, like time, gives birth to the forgetfulness, but does so by removing an individual from all relationships and placing him in a free and pristine state – indeed, in but a moment it can turn a pedant and philistine into something like a vagabond.

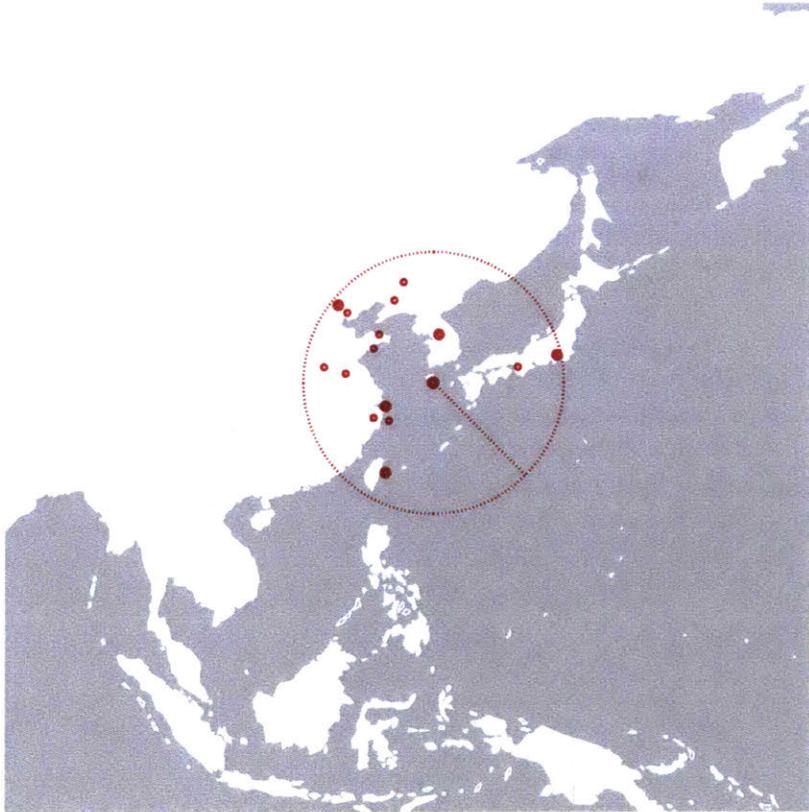
Time, they say, is water from the river Lethe, but alien air is a similar drink and if its effects are less profound, it works all the more quickly.

Thomas Mann, [Magic Mountain]

Site

Jeju Island

The destination of this getaway is Jeju island. Participants will register to the program while in cities, spend four weeks within the island living alternative modes of life, expose themselves more to the nature, and create a community with the locals and other participants. Accommodation will be provided in exchange of contributing to and providing labors to the local industry including tangerine farming and horse farming. The local population is aging and is in need of helping hands.



Jeju island and adjacent cities

Jeju island is located between South Korea, Japan and China. Within two-hour flight distance, there are ten cities with population of more than five millions. The frequent flight from Seoul and Jeju is affordable enough being less than sixty dollars lowest.

Geographically, the island is formed by volcanic activities and there is Halla mountain, highest mountain in South Korea in the middle. Also it is well known for the abundance of black and porous stones all around. These stones are not only used to protect the farms from the wind, but also used to build the stone walls that are elongated along every streets. Ceaseless paths defined by these stone walls that connect every corners of the island is one of the most distinctive and beautiful feature of the island.



Canola farm and Gapado
photo credit - Topic Images Inc.



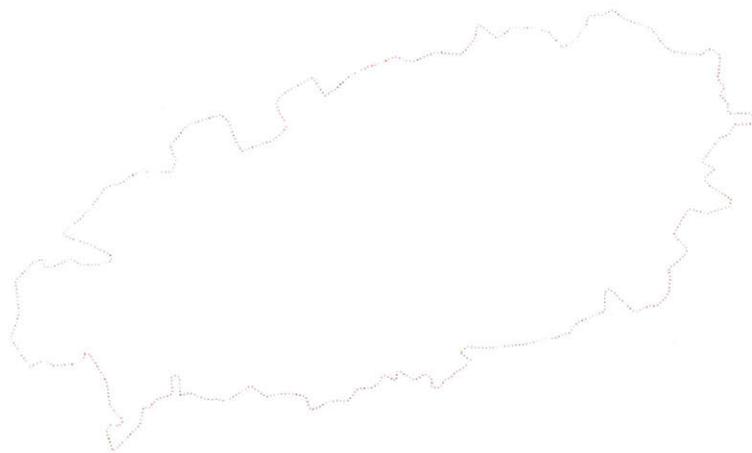
Horse Farm
photo credit - Hoonie Cho



Farms protected by traditional stone walls
photo credit - Yongdae Kim



Reeds field
photo credit - Gyuri



Jeju island and walking trail

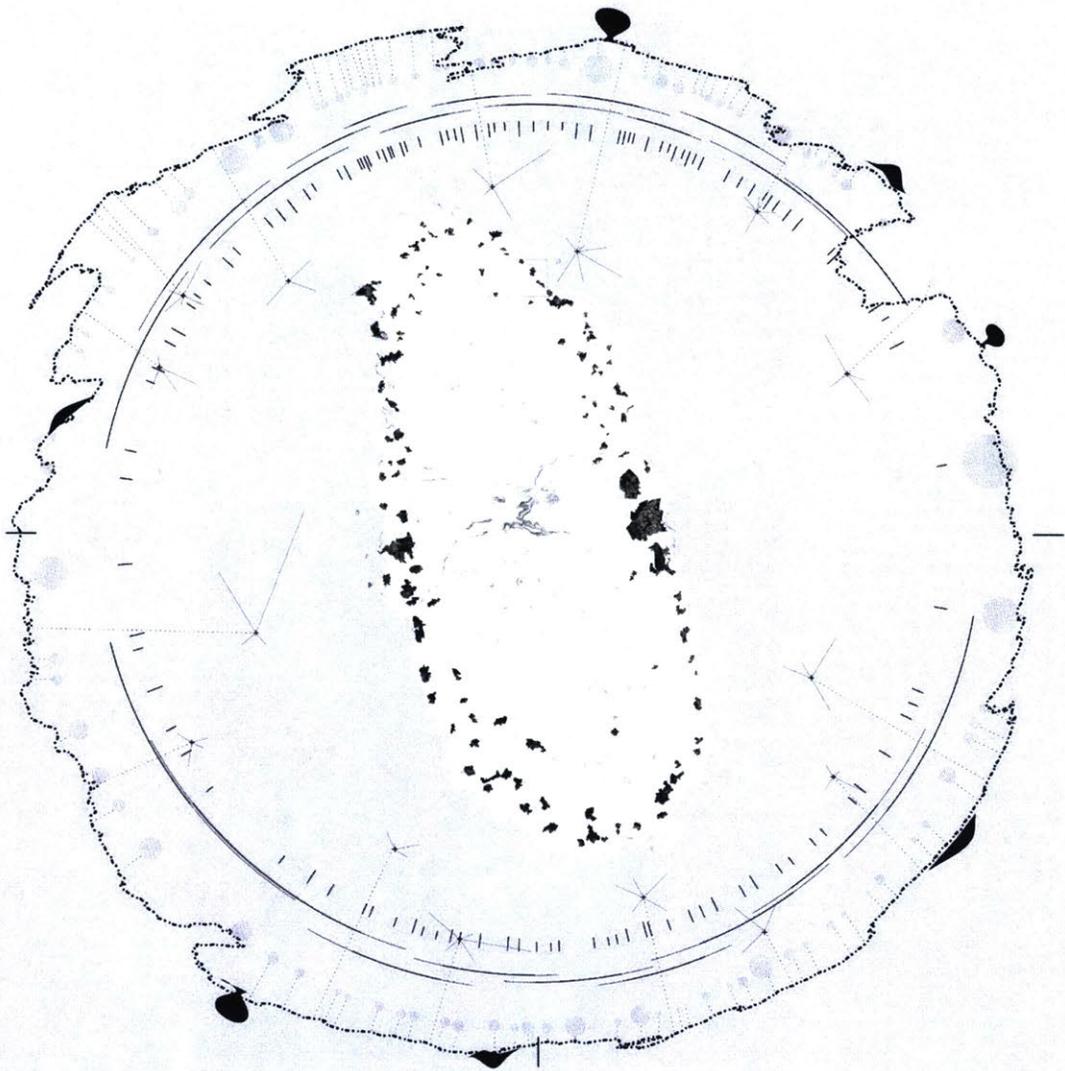
The Jeju island is surrounded by a walking trail that connects scenic spots and villages along the coast line. Considering that the villages are located along the coastline due to the geographic condition, the walking trail goes through and stitches most of the settlements together in a ring. While driving roads go across the island, the walking paths lead to the perimeter, and to this walking path.



Walking trail in Jeju island
photo credit - Naver Inc.

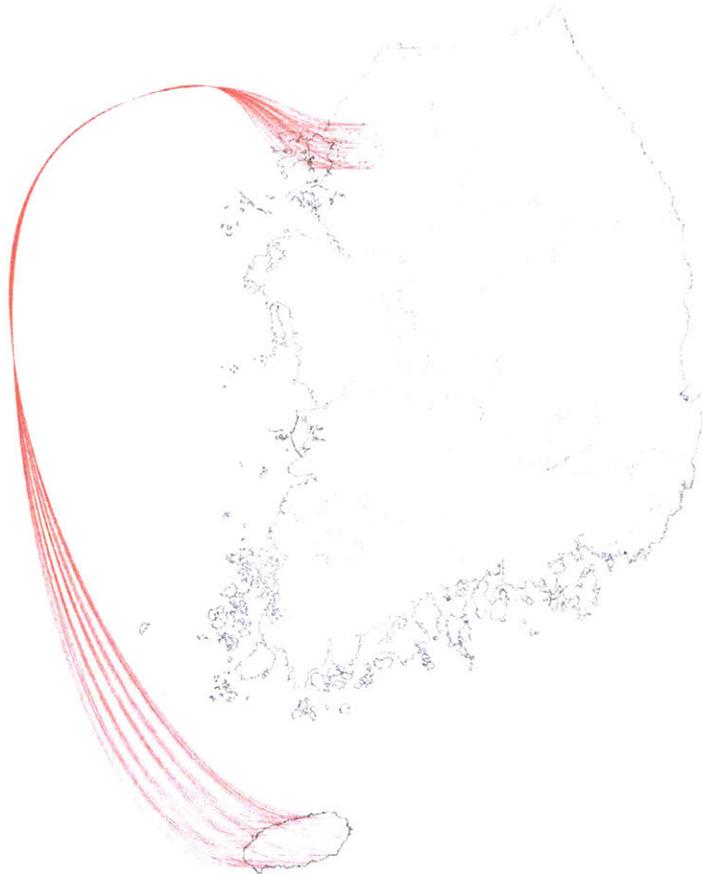


Walking trail in Jeju island
photo credit - Topic Images Inc.



Urban detox

Getaway to the Jeju Island for four weeks



Participants from Seoul will move in to the island for a determined time of a month. The program will connect the people who are in need of accommodation and temporary relocation expenses with the local people of Jeju island that need hands and willing to offer accommodation in exchange of labors.



Existing villages of Jeju island are located at the perimeter of the island, connected by the walking trail. The walking trail that goes through or by villages will be transformed to facilitate community activities in different scales.

[Community Spaces of Different Scales]

scale-1
VILLAGE
 community space for
 10-30 ppl



scale-2
PUBLIC
 community space for
 30-100+ ppl

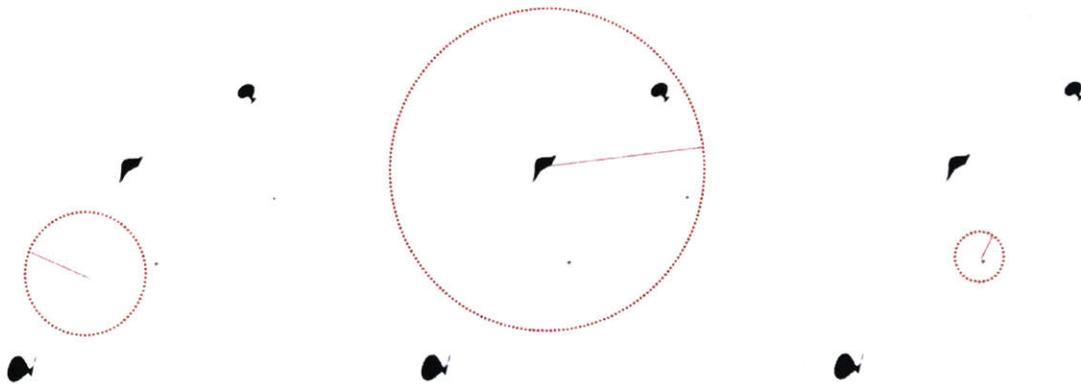
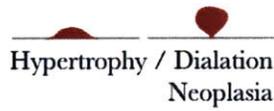
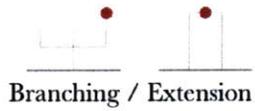


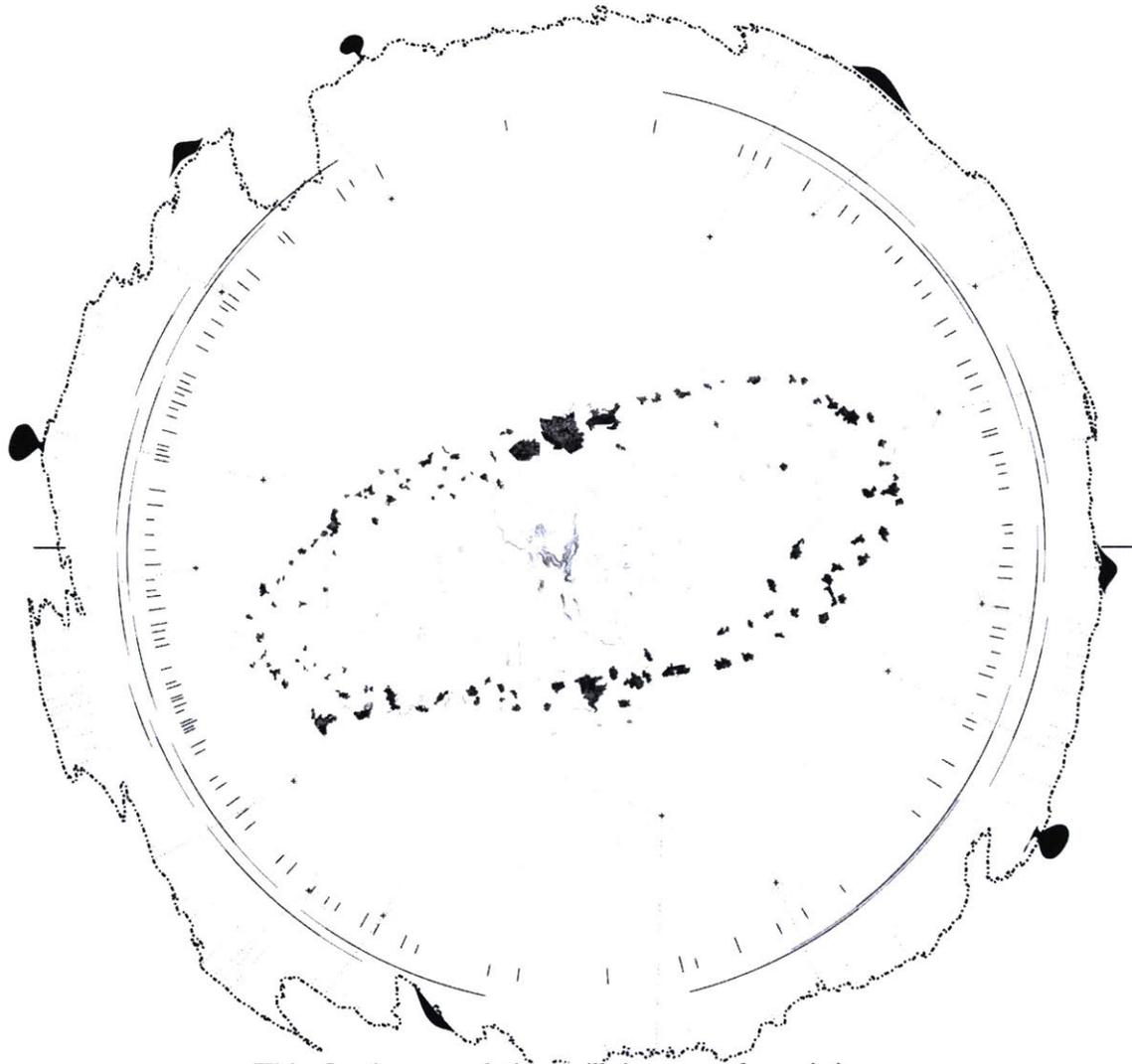
scale-0
REMOTE / TRANSIENT
 community space for
 2-5 ppl



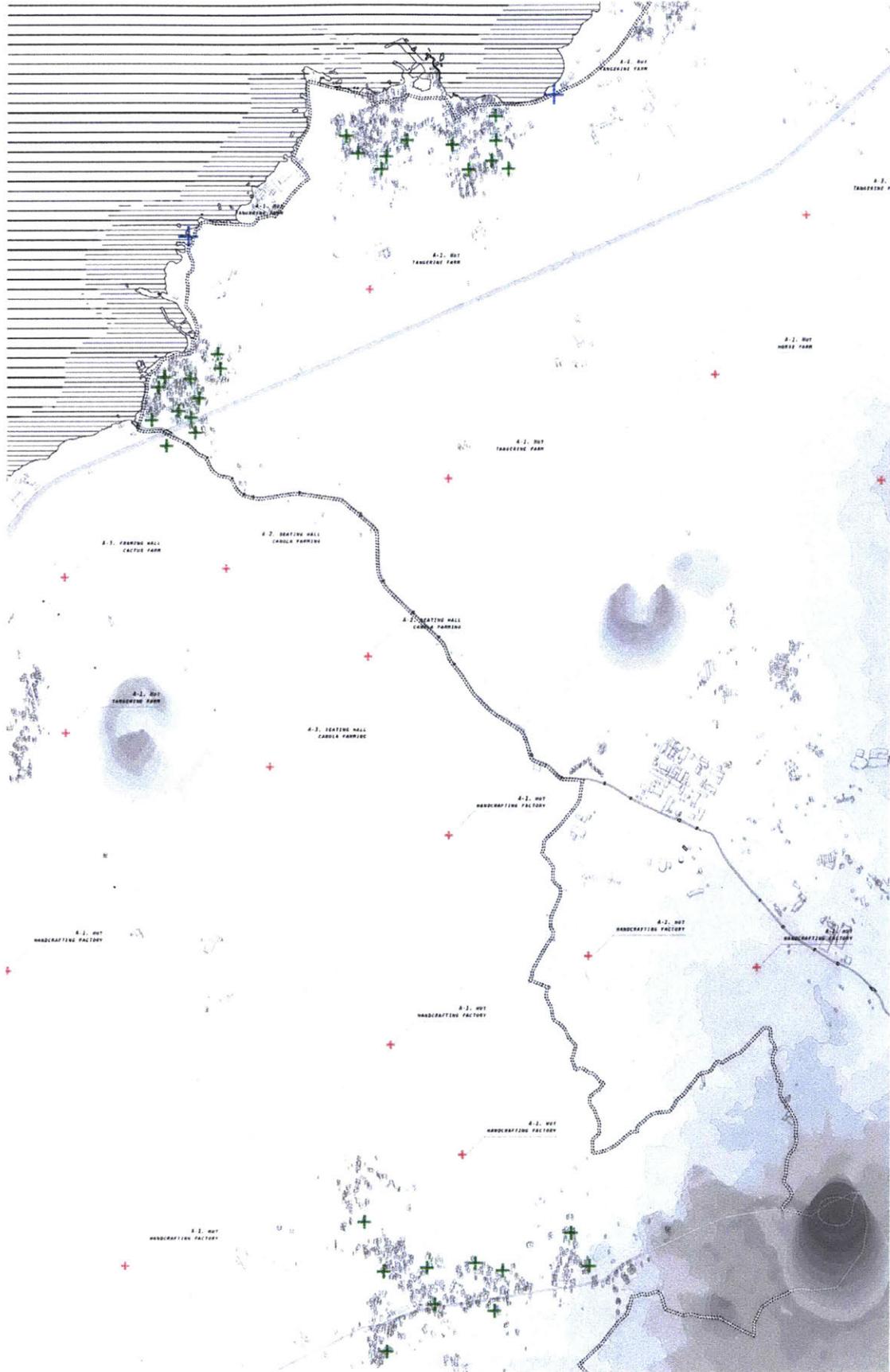
[Spatial Strategies]

Transformation of the Walking Trail



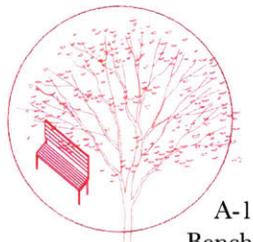


This floating population will increase the existing population by 10%, and will be transfused by a cycle of a month. Each village will be the unit of proximity community with the locals and also with other participants. A group of 5-10 villages will be larger unit of communities, for activities such as lecture, sports, or concerts. The smallest unit will be remotely located for transient communities.

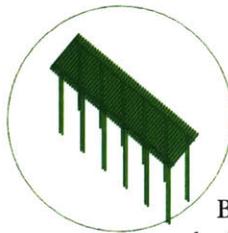


Scenario

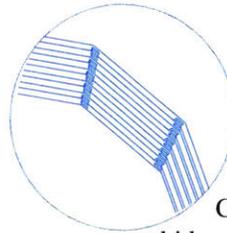
Typologies



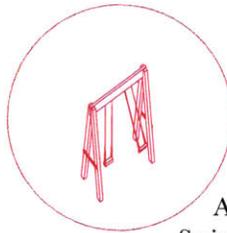
A-1
Bench



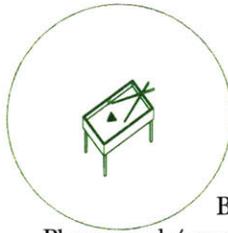
B-1
shades



C-1
amphitheater



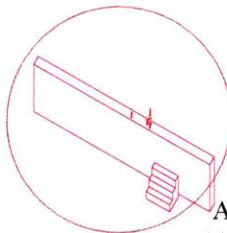
A-2
Swings



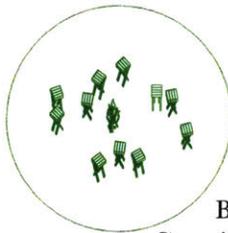
B-2
Playground / sports



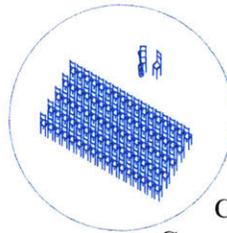
C-2
Sports



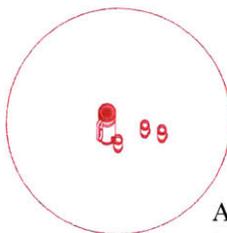
A-3
Star watching



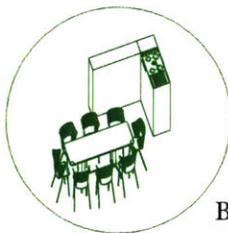
B-3
Camping



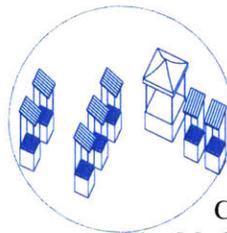
C-3
Concerts



A-4
Tea time

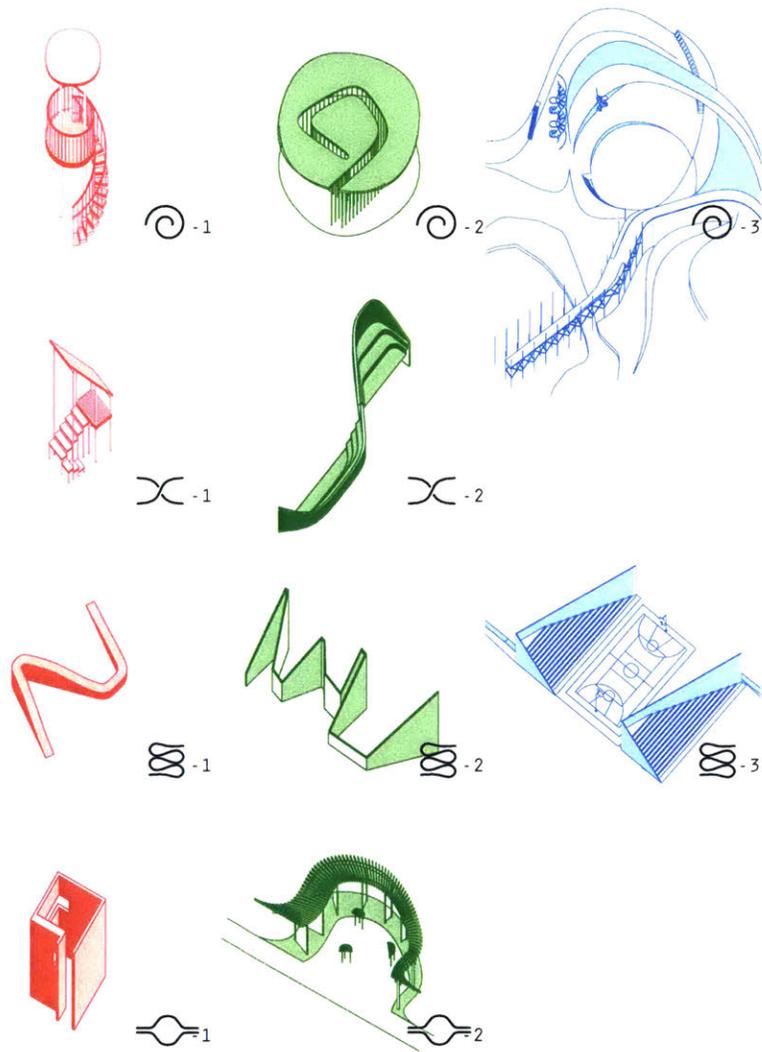


B-4
Cooking together



C-4
Flea Market

[Activities in different scales]



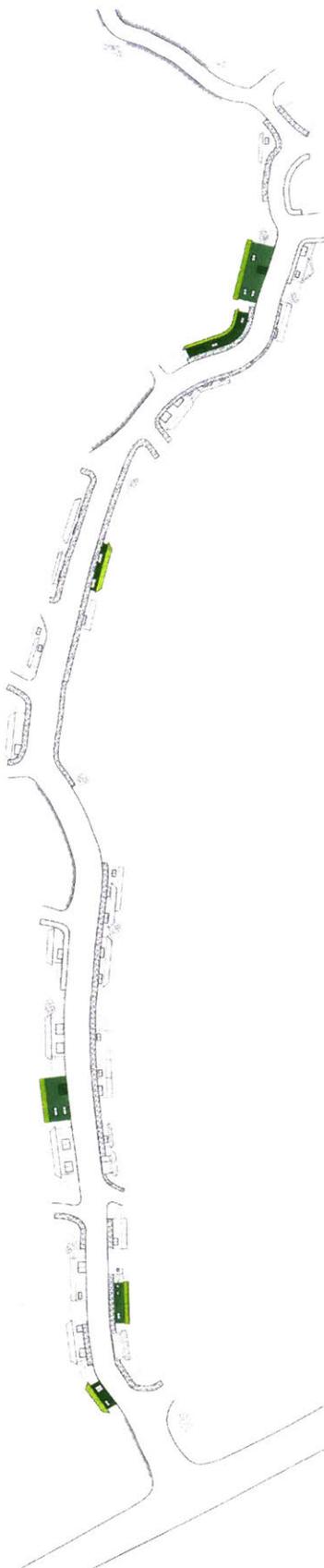
[Spatial Typologies]





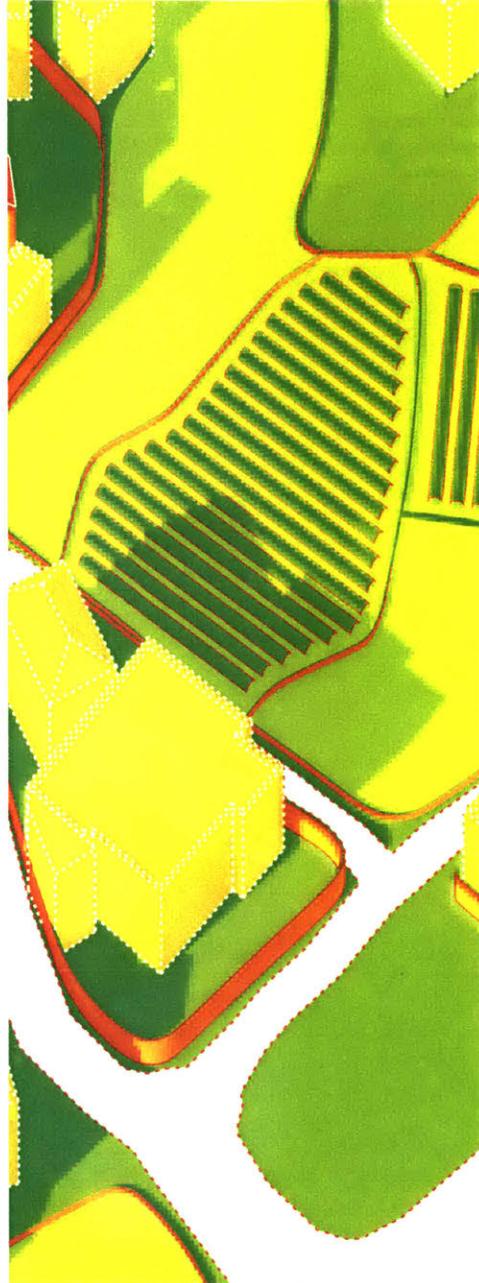
I. The Village

The village is the basecamp for the program. Participants stay at private room or apartments hosted by the local people. This scale-1 community space will provide a space for people to gather occasionally and share pieces of their daily lives, for activities such as small talks, table tennis, star watching, camping and cooking/eating together.



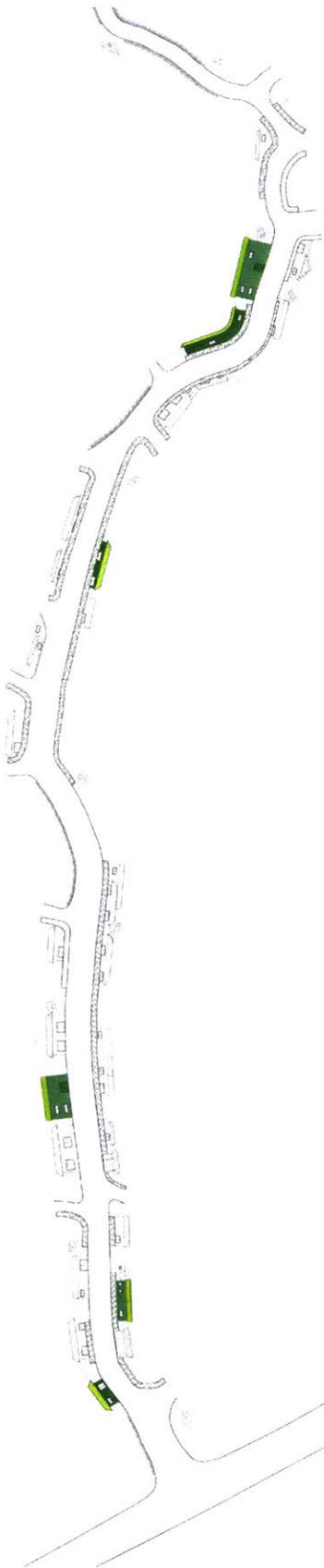
Host Houses

Participants stay in the private rooms or apartments, hosted by the locals. Each house of the island typically have 3-4 ft high stone walls/fences around that defines the territory.



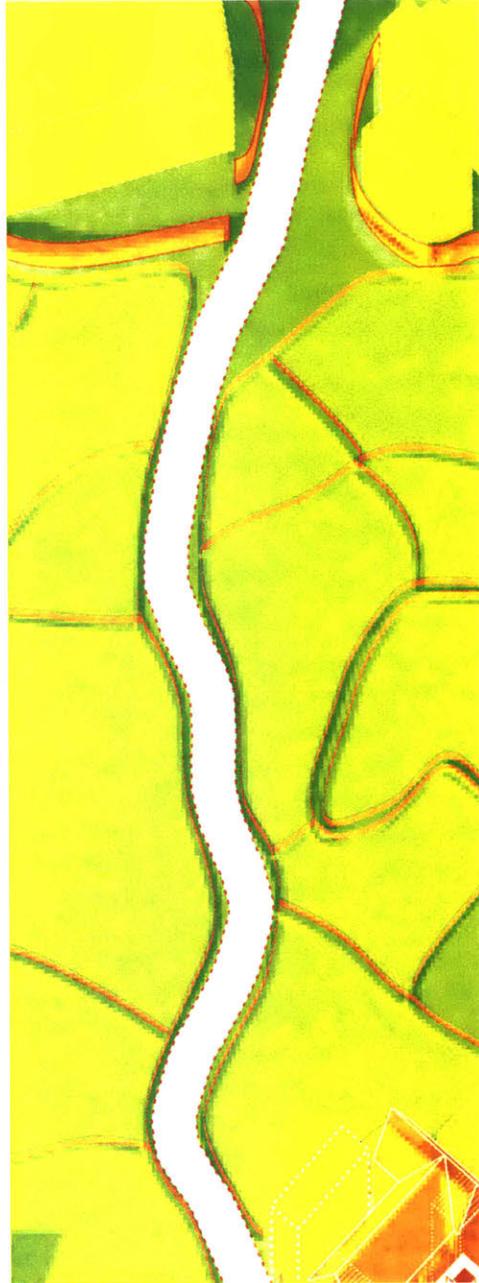
Fences and Backyards

In average, the height of fences is high enough to define the zones, but low enough for neighbors to have eye-contacts over. While taking care of the chickens at the back yard, or doing daily exercise at the front yard within the fences, people choose to expose and share their daily activities to some extent.



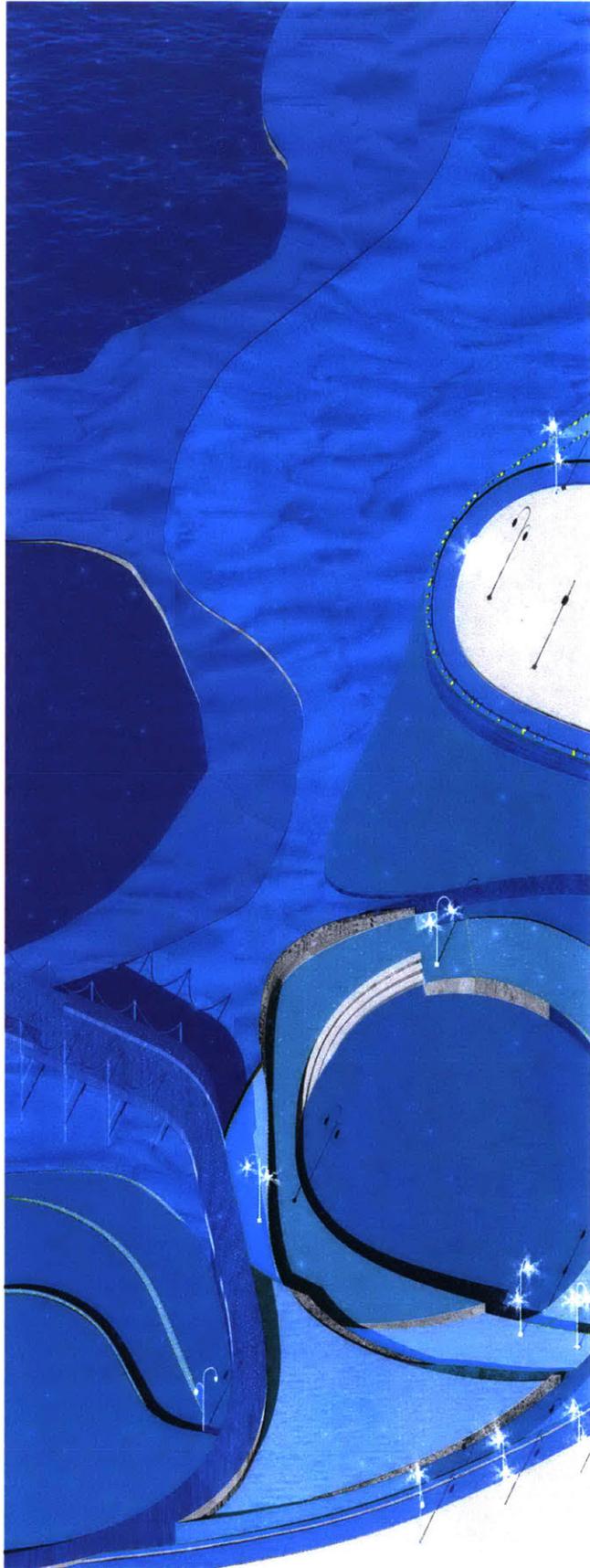
Shared Kitchen

In evenings and weekend mornings, there are dinner and brunch cooking and servings in the communal kitchen. Participants and locals altogether bring food, and cook and dine together in organic cooking.



To the Walking Trail

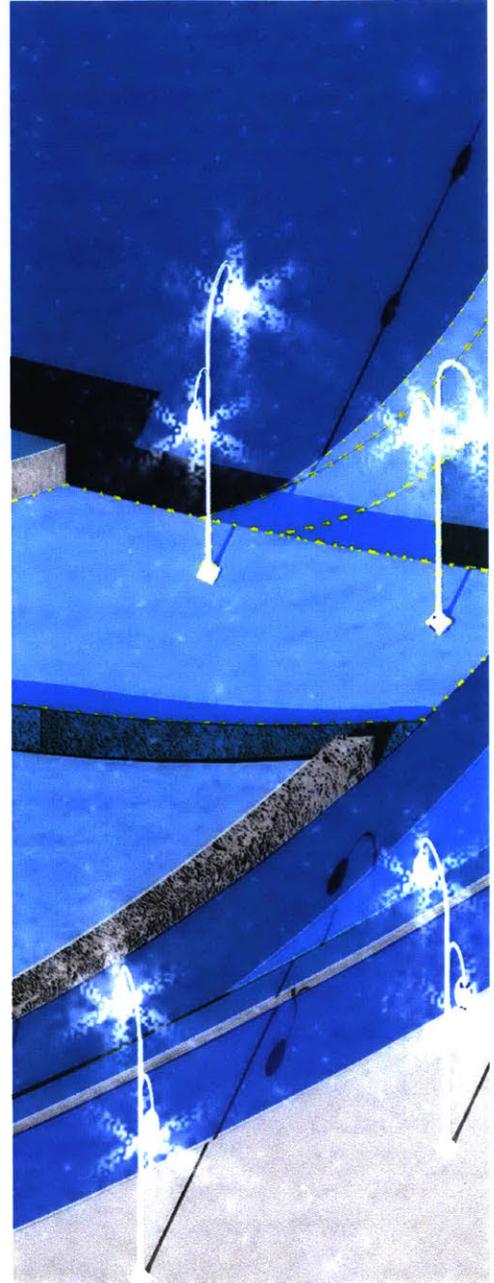
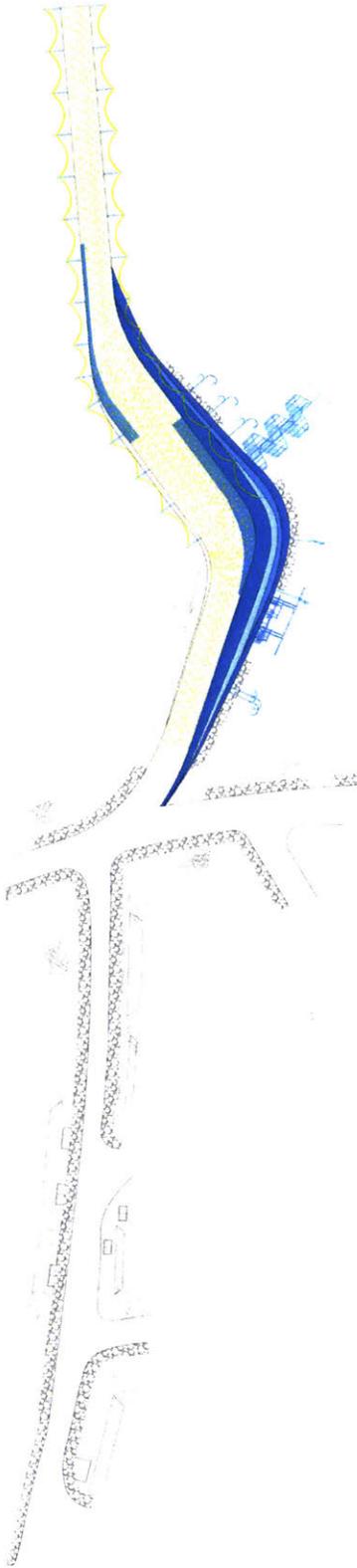
Streets of the villages lead to the walking trail along the coast line. The trail is the backdrop for public activities in larger scale and also meditative walking route with scenic views at the same time.





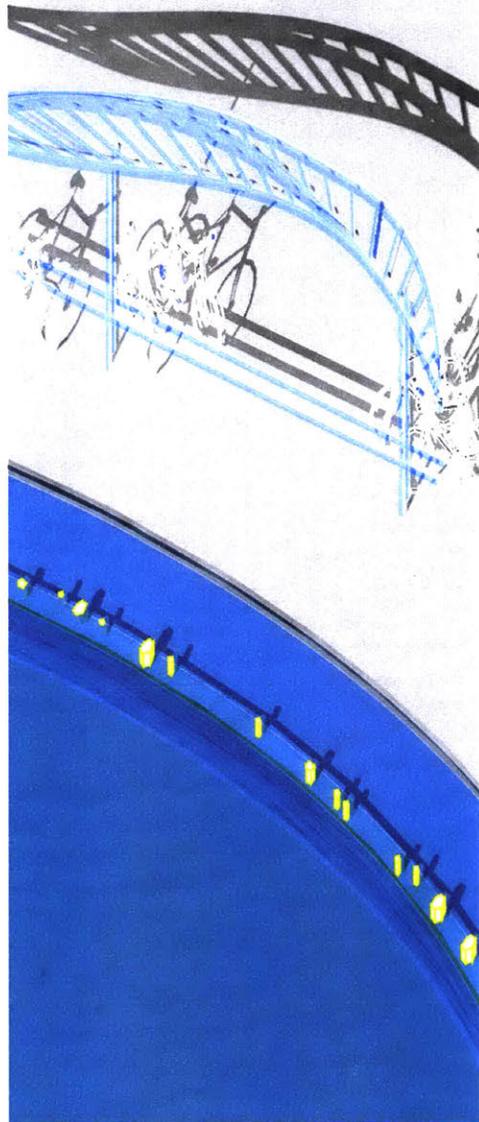
II. The Plaza on the beach

The walking trail dialates at some spots, providing a space to facilitate community activities for larger population, such as concerts, lectures, flea markets and sports. These spaces are within reach from multiple villages by the walking trail and are where participants and locals create larger communities of hundreds of people.



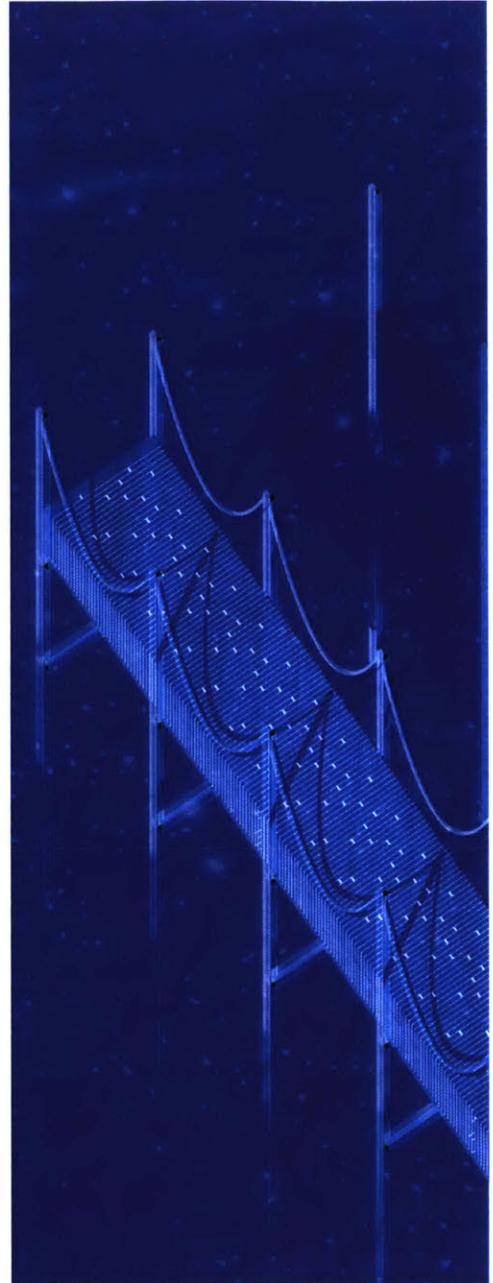
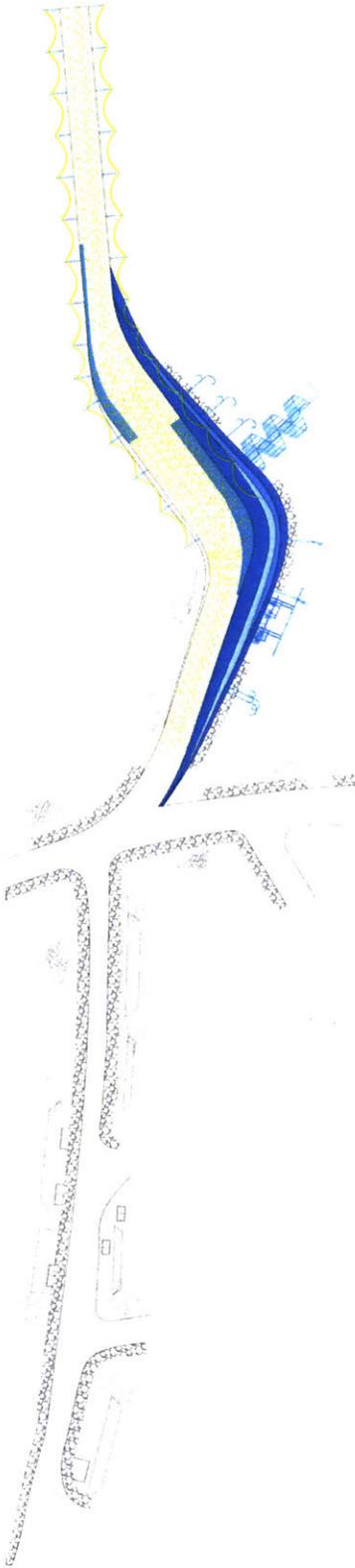
Transformation of Walking Trail

The extension, dialation or neoplasia of the walking trail forms the public space, which draws people seamlessly from the villages.



Slow Life

The plaza is within walkable distance of 5-10 villages and even more by biking. The fact that this plaza is the neoplasia from the walking trail encourages people to enter slowly either by walking or biking and allows more contacts between people.



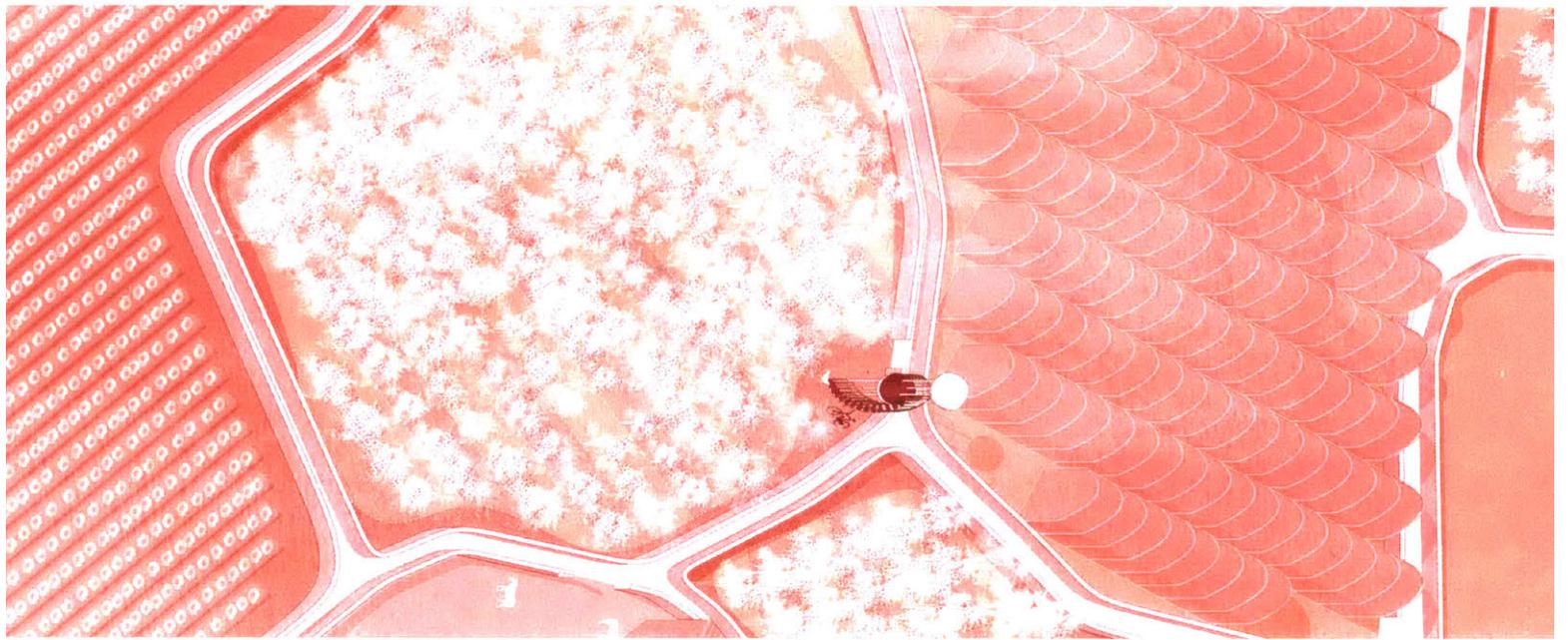
The Border

The plaza is located next to the dock. The edge of the island, as the border of manmade structures and the ocean/sky, reminds people of what they do never think of in the city environments.



The Trail Continues

The trail once again continues back to the village that people have departed from, or to other spots to explore. The trails are defined by fences, stone walls, rows of reeds, stones and trees.

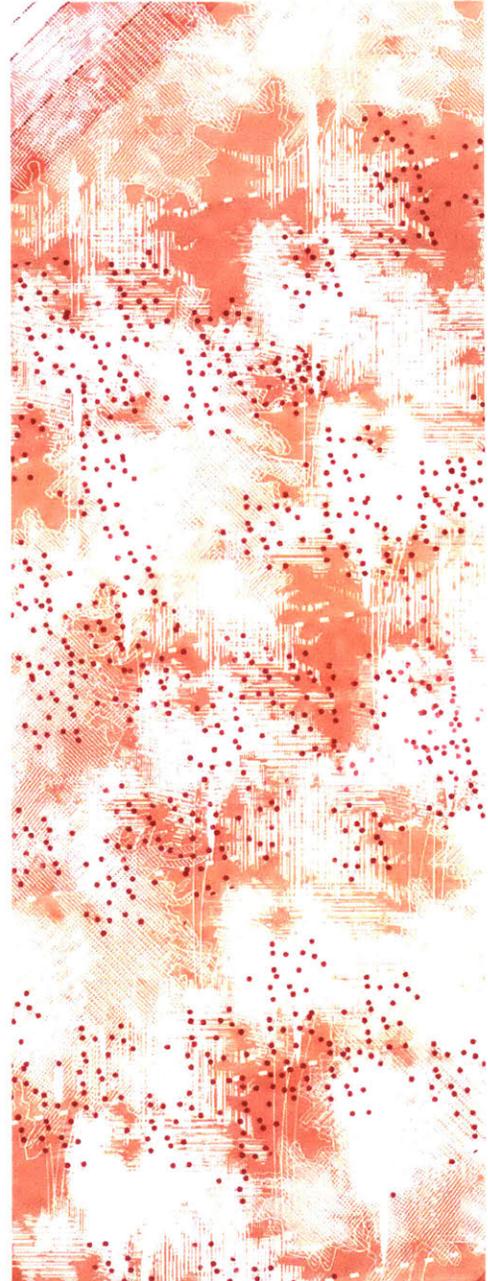




III.

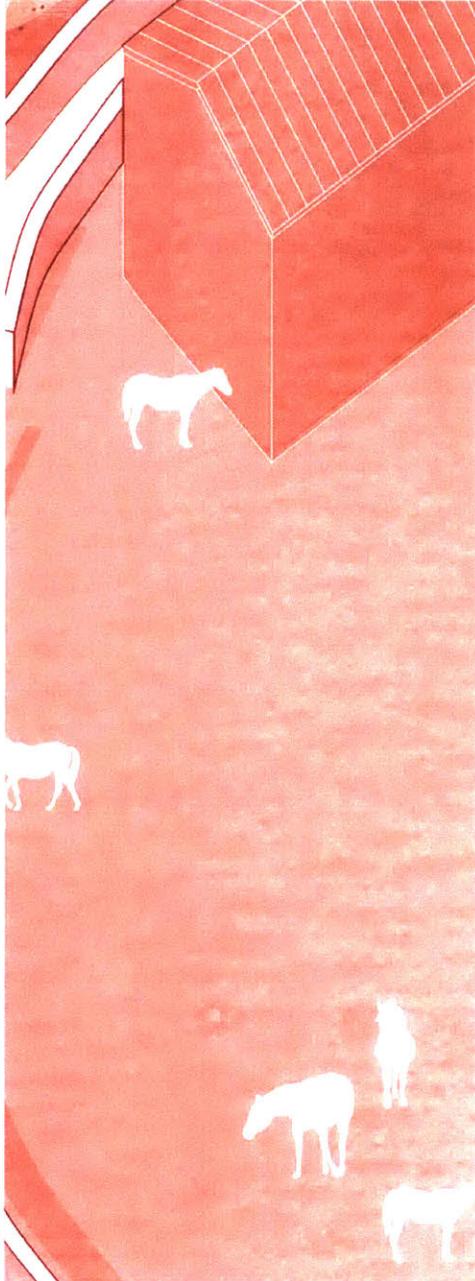
The Hut in the Orchard

During the day, people work at the fields instead of offices as they did in the cities. In between or after working at the tangerine orchards or horse farms, they take a break and hang out with each other at the hut under the shade.



Tangerine Orchard

Tangerine is the major product of Jeju island. Participants will help the local people with the farming.



Horse Farm

Raising and training horses is also the local industry that needs hands. Farming requires people to follow the cycle of the nature, which is infeasible in cities.



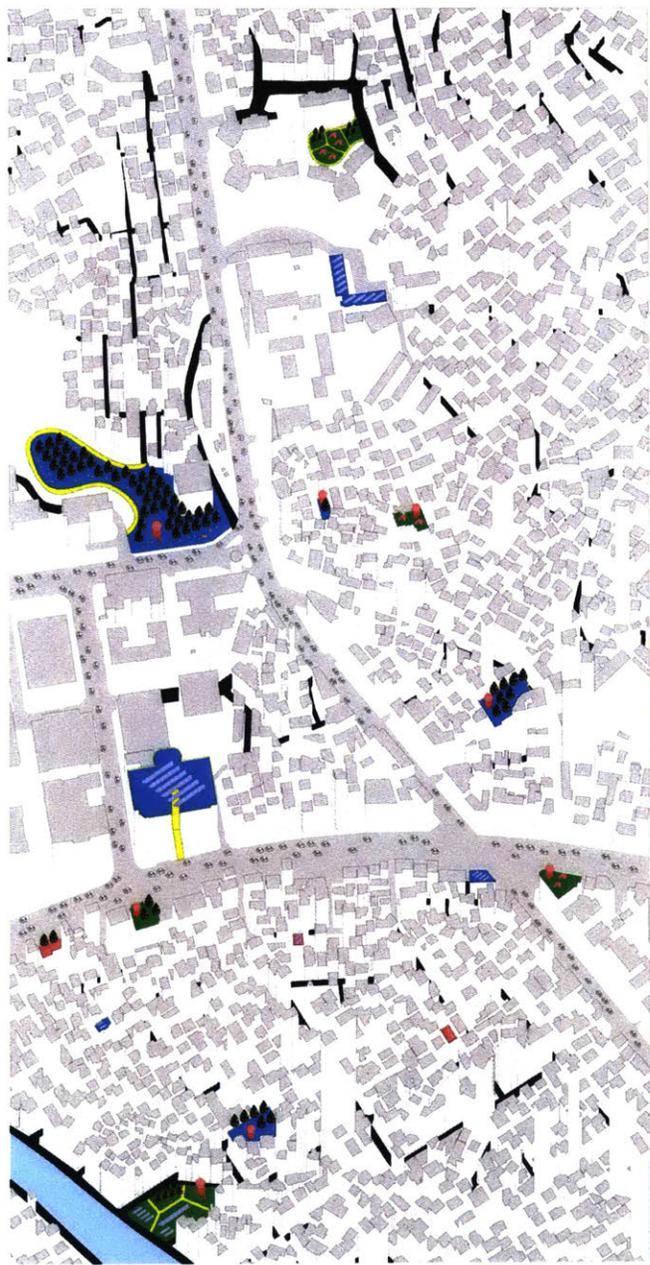
The Hut in the Orchard

The hut is located in the tangerine orchard, also connected by the extension of the walking trail. For lunch, or for a tea time, people gather at the hut seeking the shade.



Connection

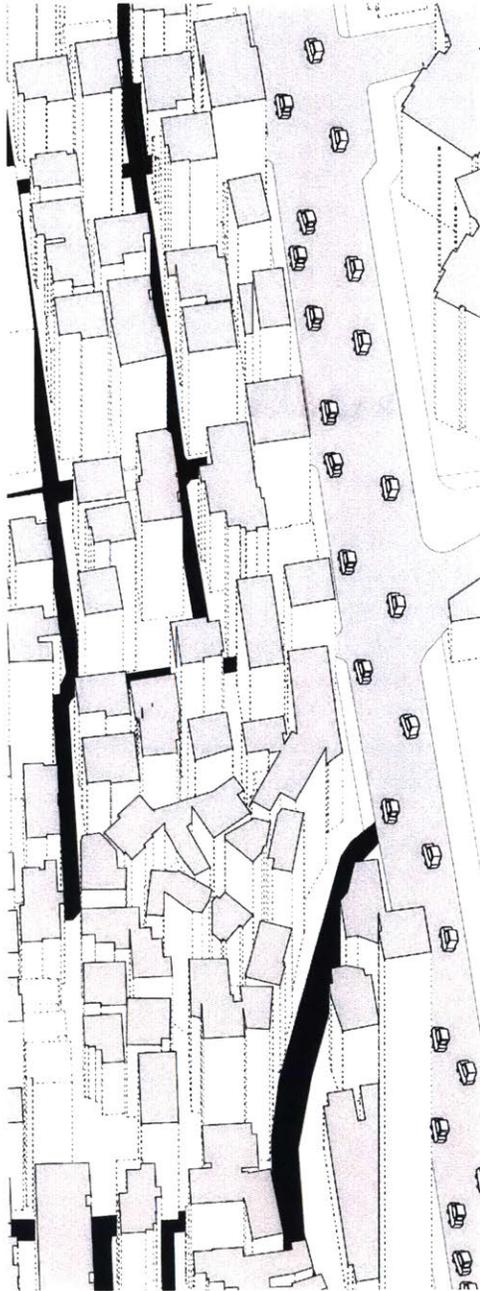
The roads that connect the fields once again lead people back to the villages and the walking trail. The whole island is always connected by streets and in continuation of the walking trails and they become the backdrop for the scenes of human contacts.



IV.

Back to everyday life

'Recovery' is the premise of curing spaces. The problem is expected to be 'solved.' The short stay in the island, completely separated from everyday life, would work as an antidote or vaccine that strengthens one's immune system to continue to survive in the urban environment. Eventually, this program will benefit participants by helping them to incorporate what they have experienced in the Jeju island.





Appendix 1

Thesis defense
December 21st, 2017

Guest Critics:

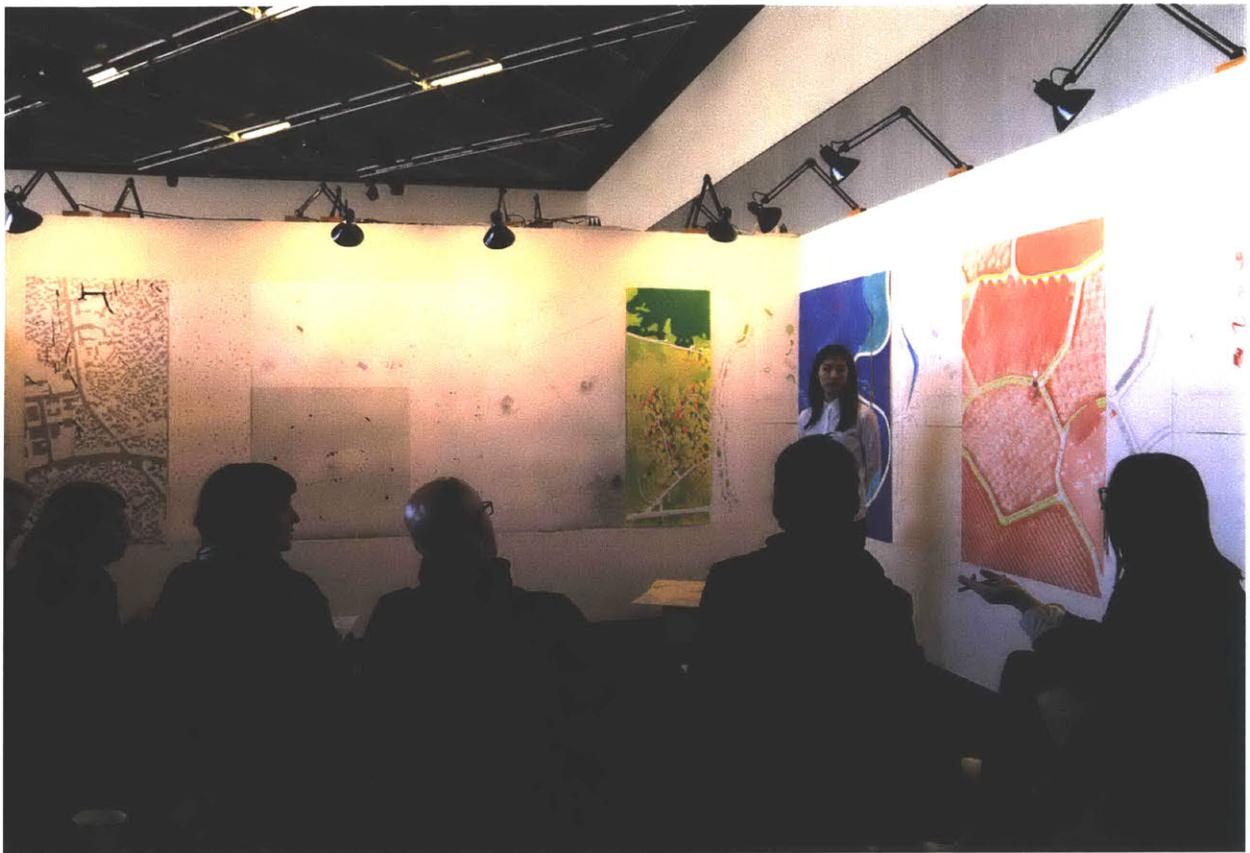
Rosetta Sarah Elkin
Jesse LeCavalier
Amy Culper
Vivian Lee



Final Thesis Presentation
December 21st, 2017



Final Thesis Presentation
December 21st, 2017



Final Thesis Presentation
December 21st, 2017



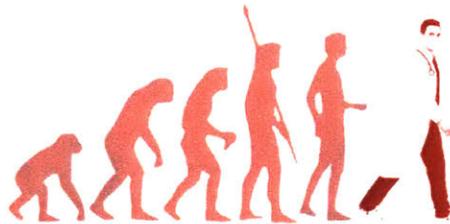
Final Thesis Presentation
December 21st, 2017

Appendix 2

Changing Medical Environment

1. Homo Medicus

Early diagnosis, Longer life expectancy



Early diagnosis, Longer life expectancy

Homo Medicus

- “ we now know for sure there are three types of mankind: ”
- (a) the sick,
 - (b) survivors, and
 - (c) previvors

2. Empowered Patients Flood of Medical Information

Empowered Patients
Flood of Information



“ Now that everything is perceived as
a possible source of disease,
the health, defense and fortification of our own bodies have become
obsessive pursuits ”

3. Medical Service Shopping
Public good or Commodity on the market

Medical Service Shopping
Public good or Commodity on the market



“ There is Never a ‘Free Market’ in Health Care ”

Really?

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