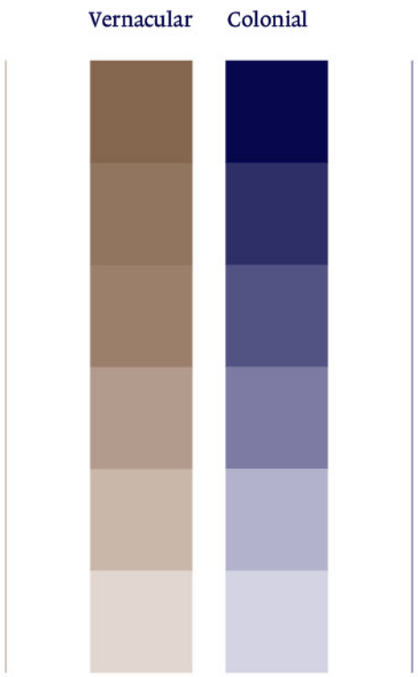
SOUTH-ATLANTIC ISLANDS

The Resilience of Isolated territories :
Towards an Architecture of Imported Vernacular

Antoine Amphoux & Titouan Chapouly



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The Resilience of Isolated Territories :
Towards an Architecture of Imported Vernacular

"It is a fact: every culture cannot sustain and absorb the shock of modern civilization. There is the paradox: how to become modern and to return to sources; how to revive an old, dormant civilization and take part in universal civilization."

Paul Ricoeur, *History and Truth*, 1965

Concepts / site

Observations

Discussion

Conclusion

Recommendations

1.1 - Hypothesis

EARTH COLONIZATION

As consequence of the globalization starting in the 16th century, the earth we are living in is now covered by ambiguous territories, from urban deserts to intensive organized nature. Our culture and built environments are constantly developing at an increasingly accelerated pace, altering through connections of nodes system, congested with networks to a point that seclusion on the mainland is disappearing. And even seas became industrialized surfaces.

"We live in an age of ecological panic masked by the cynicism of ideological denial. In the scheme of the five stages of grief, after denial follow anger, bargaining and depression, until we eventually reach the point of acceptance. What we are grieving is the death of the idea of nature and the loss of our anthropocentric world view. This is an uncanny era in which human history has collided with geological time, giving rise to strange and vast phenomena that are impossible to categorize in terms of the opposition of the human versus the natural (global warming, mass extinction, pollution). Geologists have come to call this era the Anthropocene, meaning literally the "human era". Earth in the age of the Anthropocene is an artefact – Spaceship Earth, an artificial object travelling through time and space and steered by Earthiens." [1]

The earth colonization drives our human civilization at the edge of two technological paradigms: one is the completion of the earth industrialization which turned its nature into artificial and second one is the digital revolution who transforms our communication into an instantaneous medium.
Amongst themselves emerges the large question of climate change. This complex situation changes the way we think and plan our territories and we strongly need new spatial responses to face the ecological and social challenges of our time.

The thesis aims to continue LABA's reflections by developing a special focus on isolated territories.
Indeed, the world being completely urbanized, the research try to demonstrate how even the most remote places on earth have undergone process of urbanization.
Even if isolated territories could be considered as places untouched by human activities, there is actually very singular spatial transformation .

Located at the very edge of the urbanized world, theses territories are places where logics of production, consumption and social organization appear significantly changed. Human spatial appropriations with singular aesthetics emerge from theses logics.

Moreover, such a topic allows the thesis to break with a conventional conception of architecture which sees it as an object coming from mass production; a generic product supports of a vehicular modern culture.

VERNACULAR VERSUS COLONIAL

To do so, the thesis proposes to explore the potentials of an architecture that could emerge from the binary opposition Vernacular - Colonial in isolated territories.

Vernacular and colonial are the representation of two opposed concepts : the first, Vernacular, is the paradigm of a culture intimately linked to its territory, and the second, Colonial, is vehicular and invasive. It is the expression of spread out modern culture. Something of a foreign origin that occupies and populates a place.

In architecture, Vernacular is the quality of an architecture that emerges from the specificity of a site whilst Colonial is the quality of an architecture foreign, dominant, coming from outside.

Vernacular and colonial are two adjectives that define both culture and architecture. Here, architecture is seen as spatial expression of a culture. It's not only building and style but also concerns the artificialization of spaces that includes Territories, Urban, Landscapes, buildings...

THE RESILIENCE OF ISOLATED TERRITORIES

A number of isolated territories, such as British South-Atlantic islands, which have been recently colonized by an colonial power are the ideal archetypes to investigate the relation between vernacular and Colonial.

Indeed they are the place of an interesting phenomenon: the application of an external system into a very extreme and remote environment.
The condition of remoteness creates the necessity of an autonomy that forces a colonial culture to adapt itself from a specific site following the simple but complex logic of adaptation. With time and societal changes, the imported culture are merged with the necessity of local-skills.

This capacity of environmental adaption narrates in the book of Michel Tournier, *Friday, or, The Other Island*[2] can be defined in our case as the phenomenon of resilience in isolated conditions.

From this resilience, a paradoxical hybrid culture emerges: The communities living there are equally linked to both colonial and vernacular cultures.
This can be read as the strange synthesis between, on one hand the wish of belonging to a modern world and on the other hand the desire to develop a communal living in the remotest places on earth.
It embodies the Paul Ricoeur's quote in page 3 : live in a place and be in the world (inhabit in a specific territory while taking part in universal civilization).

TOWARDS AN IMPORTED VERNACULAR

Beyond this duality, the communities living in these isolated places developed through time an ambiguous vernacular architecture made from the mosts standard imported elements and with very few specific materials. Indeed, the lack of local materials creates a culture of *bricolage* and re-use. A culture of adaptation giving very specific spatial expressions.

If vernacular architecture is the quality of an architecture emerging from a place how do we call an architecture which is the expression of an imported culture adapted to a specific site ?

As hypothesis, the research questions the existence of an *imported vernacular* emerging from the resilience of isolated territories.
The selective reading of the thesis will sketch the conditions to establish Imported Vernacular as a potential for an architectural language.

How a small remote community belonging to an colonial power can develop its own architectural language ?

How an architectural language can enhance the self-sufficiency of a remote community ?

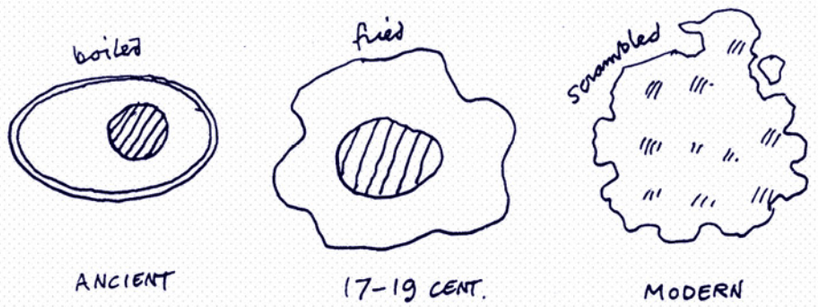


Fig. 1 : Cedric Price *City as an Egg*

Diag. 1 : Isolated territories Urban Nature

1.2 - Relevance of the Theme

QUESTIONING THE DICHOTOMIES

Starting from the opposition of vernacular versus colonial, the thesis intends to question couples of dichotomies that reflect classical oppositions inherent to modern societies :

Vernacular / Colonial

Local object / Vehicular System

Site-specific / Generic

Adapting / dominating

Craft / Standard

Emerging / Foreign

Inside / outside

Fig. 2 : Tristan Da Cunha Island Storage hut for potatoes patches

Fig. 3 : Jon Tonks, *Empire*, 2013 A Gather of Sheep, Long Island Farm, Falkland Islands, UK.

LOCAL OBJECT / VEHICULAR SYSTEM

"Thus we come to the crucial problem confronting nations just rising from underdevelopment. In order to get on the road toward modernization, is it necessary to jettison the old cultural past which has been the raison d'être of a nation ?... Whence the paradox : on the one hand, it has to root itself in the soil of its past, forge a national spirit, and unfurl this spiritual and cultural revindication before the colonialist's personality. But in order to take part in modern civilization, it is necessary at the same time to take part in scientific, technical, and political rationality, something which very often requires the pure and simple abandon of a whole cultural past. It is a fact: every culture cannot sustain and absorb the shock of modern civilization. There is the paradox : how to become modern and to return to sources; how to revive an old, dormant civilization and take part in universal civilization."

Paul Ricoeur, *History and Truth*, 1965[3]

Using Paul Ricoeur's writing to start his manifest, *Towards a Critical Regionalism*, Kenneth Frampton wants to point out how the French philosopher analyzes the crucial issues when local culture confronts modernization. In the first of the 6 points *Culture and civilization* Kenneth Frampton describes that building conditioned by the industry of construction became a simple stripped bare to the elements of production.

Combined with this is the demise of urban fabrics and its corresponding culture. He explains that Infrastructure of freeways and mono-functional high-rises, two of the main protagonists of an universal civilization, are more concern about utility than collective reality.

Our research tries to not be reactionary as Frampton may be in his text but explores the possibilities behind Paul Ricoeur's paradox.
Instead of focusing on regionalism and the lost of cultural diversity in globalization the thesis investigates how modern transformations and technologies could be beneficial to a local culture in order to face their spatial challenges.

Furthermore, Communities living in isolated territories has a long history of subsistence economy and self-sufficiency. Self-sufficiency is not only about food sovereignty but also embraces a large amount of problems related to our dependency to global systems and mass production (energy, infrastructures, goods).

The dichotomy Vernacular and colonial appears as a symptomatic mirror of the relation between a local object and the vehicular systems of modern world .

Fig. 4 : Smiljan Radic, *Extension to the charcoal-burner's hut,* 1998, Santa Rosa, Chile

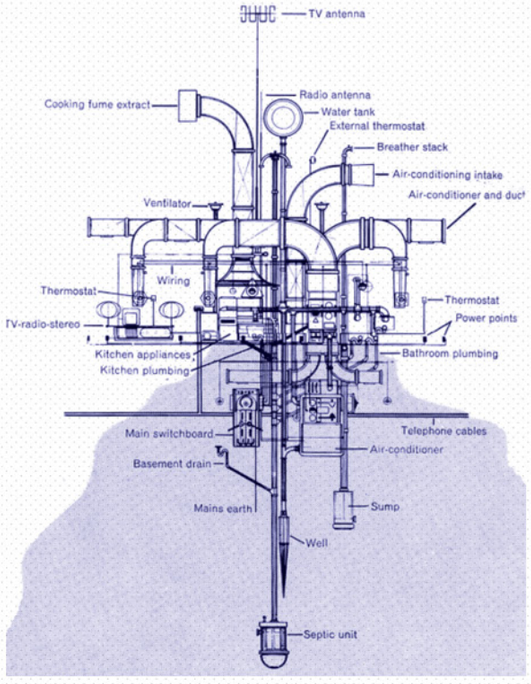


Fig. 5 : Reyner Banham & François Dellagret, *A Home is not a House,* 1965
The primitive hut of the modern world.

SITE-SPECIFIC / GENERIC

"Modern building is now so universally conditioned by optimized technology that the possibility of creating significant urban form has become extremely limited". [4]

Kenneth Frampton, 1982

For Frampton, architecture became since modern time a generic product detached from the specificity of a site, and follows the universal logic of global production.
He believes that a move toward a *critical regionalism* can redevelop a lost sense of "place" who become an endangered specie in a world of mass commercialization.

Here, he promotes architecture as a specific object emerging from the consciousness of a regional culture.
As a critic of iconic buildings and generic cities, a *critical Regionalism* involves then a directly dialectical relation to the natural conditions of a site : *"topography, context, climate, light and tectonic form."*
Thus, the reading of site characteristics is seen as a generator of programs and forms. The use of cultural background, traditional-skills or local material are some of the many ways to develop an architecture project able to reproduce a *"sense of place"*. It is a site-specific object trying to use both modern technology and traditional culture.

Site-Specific is not necessary Vernacular and vice versa. However, in isolated territories such as a small remote Island, there is no logic of regionalism and each object emerging from the specificity of a site tends to be site-specific.

Generic is not necessary colonial, there are many of colonial architectures. From Colonial Portuguese Baroque in Brazil during the 16-17th century to contemporary colonial Isreali architecture. However, colonial architecture in isolated territories are mainly made of imported products using generic solutions.

The following quote is used to define Site-specific :
"Building the site, it is possible to argue that in this last instance, the specific culture of the region - that is to say, its history in both geological and agricultural sense - becomes inscribed into the form and realization of the work. This inscription, which arises out of "in-laying" the building into the site, has many levels of significance, for it has a capacity to embody, in built form, the prehistory of the place, its archaeological past and its subsequent cultivation and transformation across time. Through this layering into the site the idiosyncrasies of place find their expression without falling into sentimentality". [5]

Fig. 6 : Mathieu Bujnowskyj, *Arctic Mines Safari,* Svalbard, Norway, 2011
The building is shaped by the direction of cables crossing the territory.

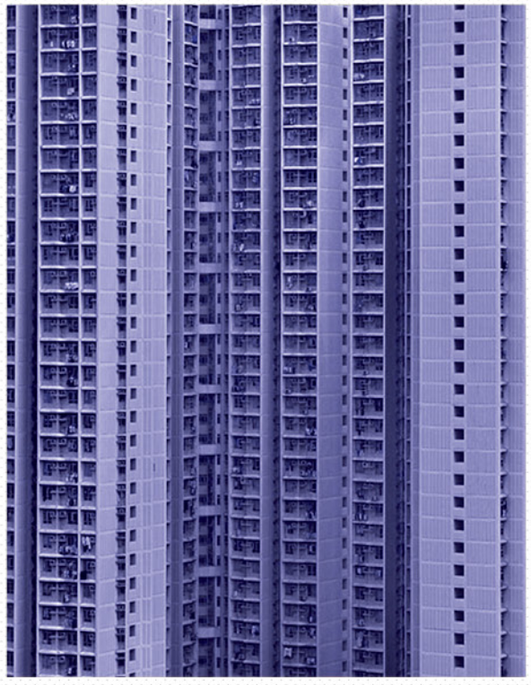


Fig. 7 : Michael Wolf, *Architecture of Density*

ADAPTING / DOMINATING

Adapting versus dominating point out the relation that our societies have with their environments. If vernacular can be linked to the notion of spatial adaption, colonial can also be linked to the wish of domination.

Every rational society starts to control a place by dominate it in order to develop a settlement. We clear a place and set boundaries. It is the first step towards the artificiality of space.
Through history, technological evolutions significantly help humanity to control their environment, to believe that we can dominate it.

Our modern human societies have been created, at an increasingly accelerated pace. Since 1950, we have produced more machines, goods, buildings, bridges, tunnels than the all history of humanity.
The world's population was 2.5 billion in 1950 and it's 7.35 billion today. By 2050, humanity will be close to ten billion. We will not only be more numerous but also richer, with more demands, occupying more space and producing more trash, more dominant.

The current climatic issues are one the main consequence of this exponential growth.

Regarding theses challenges, from earthquakes, tsunamis and volcanic eruptions, from global warning and water level rise, from demographic transformations and economical instabilities, the theme of resilience appears as an opportunity to develop new structures as urban form or adaptive design that answers theses questions.

Indeed, as the example of Japan or Dutch societies, resilient entities behaves as adapting forms, temporary rigid and perpetually ductile. With an outstanding capacity to respond to and to recover from changes which developed through times, these entities are able to use both high modern technologies and local knowledge to develop site-specific solutions.
The resilience of a socio-ecological system is linked to specific natural conditions and produce a diversity of architectural answers.

For the research, isolated territories seems ideal locations to address this topic. Indeed, in remote and extreme environment this capacity of resilience appears a necessity.
Here, the idea is not to say which attitude between adapting and dominating is good or bad but how both of them can be rethink.

Fig. 8 : NLE Architecture, *Floating school*, Lagos,Nigeria, 2012
photograph by Iwan Baam

Fig. 9 : Edward Burtynsky, *Three Gorge Dam project*, Yangtze River, China, 2005

CRAFT / STANDARD

The insularity of places creates a dissociation with global systems of production that makes any construction a very difficult task to achieve.
In remote places, the cost of one cubic meter of concrete is one of the most expensive on earth.
Indeed, 1'400 € is a price one cubic meter of concrete at Tristan Da Cunha island which is ten times the average price on the mainland (around 130 €/m3).
In 2008, the reinforcement of the existing little harbor of the island needed the help of the British army and cost around 9 million € (7milion £).
It was funded by the British Government (*the Department for International Development*).

This is why exploring new building process based on digital technologies appears as an interesting topic to develop.
Following Prof. Neil Gershenfeeld (MIT Media Lab) and as the examples of *WikiHouse* or *Fab Lab* (Fabrication Laboratory), new digital fabrication includes a small scale production with small machines and very simple standard materials (like plywood). This can helps to create a "non-expensive" sit-specific object involving at the same time the knowledge of local communities; a craft architecture from standard materials.

How a small scale workshop production can help a remote community to develop it's one architectural construction ?

In such territory, the dichotomy of *craft versus standard* appears questioned by the necessity to import standard materials that are not existing on the islands.
With the problem of access, this standard materials appears to be very expansive and the islanders cannot afford to buy it by their own.

In these places, a standard material doesn't mean that it is cheap as well as craft object doesn't mean that it is expansive or obsolete. It's actually the opposite.
There, bricolage (DIY) and re-use are a necessity and the planned obsolescence of goods inherent to capitalist logics doesn't work.

Building in isolated territories which lack in local materials (like wood or a clay) introduces an inherited problem to rethink all process of building; From the shipping of materials to the machines used for the construction, much like building on the moon.

Fig. 10 : Shin Takasuga, *Railway Sleeper house*, Miyake Island, 1970'
The house was built by using only old, wooden railway sleepers.

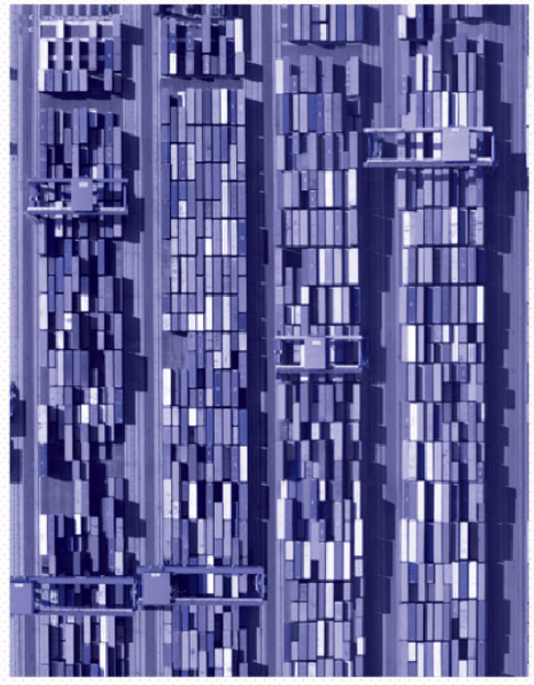


Fig. 11 : Stephan Zirwes, *Zones Project*, 01 Indutry

1.3 - Definitions

Any development of a research works with precise definitions of concepts that set the coherence of the hypothesis.
Nevertheless, the goal of definitions is not to be the more exhaustive as possible but try to fit each concept in the frame of the thesis.
To do so, each definition uses quotes and references. It starts by a general approach and follow by a more specific. Eventually a statement with three conditions will summarize the definition of each concept.

Regarding the hypothesis, these four key concepts are very important to explain:

Vernacular

Colonial

Remoteness

Resilience

Fig. 12 : Still frame from *Derzu Uzela*, directed by Akira Kurosawa, 1975

Fig. 13 : Picture of the artificial island under construction in the South China Sea by the Chinese army, 2015. The Guardian

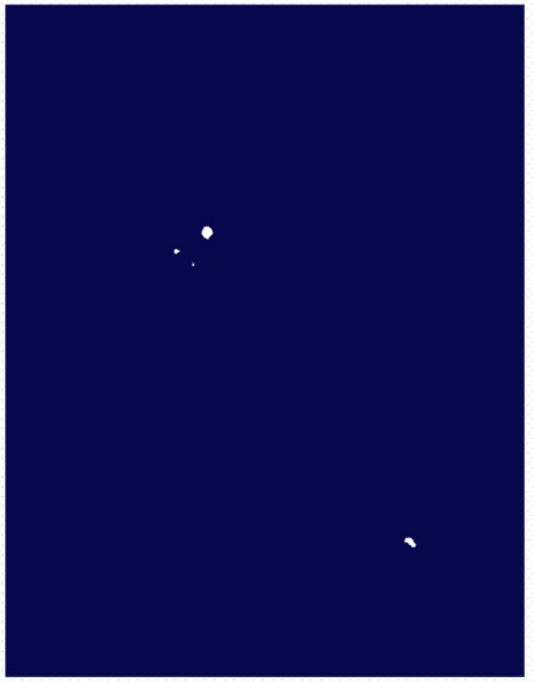


Fig. 14 : Tristan Da Cunha Archipelago
Small pieces lost in the endless surface of Atlantic ocean

Fig. 15 : Katsushika Hokusai, *The Great Wave off Kanagawa*, woodblock 1830-33. Ukiyo-e : "pictures of the floating world"

VERNACULAR
[Adjective]

"In Rome, it (vernacular) was used from 500 B.C. to 600 A.D. to designate any value that was homered, homemade, derived from the commons, and that a person could protect and defend though he neither bought nor sold it on the market." [6]

Ivan Illich, *Vernacular values, in Le Genre Vernaculaire*

A vernacular attitude can be compared to the gesture of Derzu, in the movie *Dersu Uzala* by a Japanese filmmaker Akira Kurosawa[7]. In a famous scene, the Siberian indigenous creates a wooden branches shelter, on a frozen lake, to protect the Russian topographer from the cold wind. Here, vernacular is a primitive gesture following the logic of "as found".

Indeed, more than an object, vernacular embodies for us an attitude of persistence from a natural environment. It embodies the interaction between a wild environment and a human settlement, between a non-controlled context and the local reaction towards it. The logic of the so-called vernacular is the appropriation of a place in a subsistence attitude, making an echo of Bernard Rudowsky analysis in *Architecture without Architects* (1964) [8]. In this sense, it becomes an *unselfconscious* act on a place.

In the same way, Amos Rapoport in his analysis *House, Form and Culture* [9] draws a critical distinction between what we consider as an architecture gesture and a vernacular process. He states that the important point, in attempting to create regionally recognizable cultural landscapes, is not only that the architecture is though without specialists, but rather that vernacular constitution is achieved through a system of shared values and reactions.
By being culture specific and place specific, these rules are shared and accepted within a local population.

However, when Robert Venturi develops *Learning from Las Vegas* (1972) [10], he mostly relied on cultural symbol, re contextualized design features and reformulated modern materials as commentaries on a societal context. He rethinks the common sense behind a specific culture regarding its economic, social and aesthetic values.

Thus, the different lens used to understand the vernacular tend to evolve. It reflects environmental, cultural, technological and historical contexts. Vernacular is an adjective that defines both a culture and architecture.
However, Vernacular architecture is the aesthetic expression, the quality, of a culture that emerges from the specificity of a place.

VERNACULAR IN ISOLATED TERRITORIES
As, Venturi developed his *Commercial vernacular* based on multiples criterion, the vernacular architecture in isolated territories is the expression of vernacular culture in condition of remoteness.
In isolated territories, vernacular architecture is not define by a regionalism. Indeed, each remotes territories define by itself a site-specific conditions.
The vernacular emerging from a such site is by definition a site-specific object.

According to the previous definitions, the thesis define 3 general conditions for a vernacular in isolated territories :

1 - Natural conditions
2 - Human settlements
3 - Constructions

Fig. 12

COLONIAL
[Adjective]

"Colonialism is a practice of domination, which involves the subjugation of one people to another. One of the difficulties in defining colonialism is that it is hard to distinguish it from imperialism. Frequently the two concepts are treated as synonyms. Like colonialism, imperialism also involves political and economic control over a dependent territory. The etymology of the two terms, however, provides some clues about how they differ. The term colony comes from the Latin word colonus, meaning farmer.
This root reminds us that the practice of colonialism usually involved the transfer of population to a new territory, where the arrivals lived as permanent settlers while maintaining political allegiance to their country of origin. Imperialism, on the other hand, comes from the Latin term imperium, meaning to command. Thus, the term imperialism draws attention to the way that one country exercises power over another, whether through settlement, sovereignty, or indirect mechanisms of control." [11]

Stanford Encyclopedia of Philosophy, 2012

Colonialism is type of political governance that follows a mercantile logic. It was born during the era of commercial capitalism focused on land ownership and resource exploitation (slaves, silver, gold, spices, sugar...). As mentioned above, imperialism came later with industrial capitalism that focused its domination on means of production. This is why it is often said that Portuguese built colonies during the 16th century while British set an empire at the beginning of the 18th century.

The thesis will not use the world colonialism.
It contains multiple connotations and deep attachment to historical background that this term will not be interpreted in the right way. However, because the term colonial derives from colonialism, it seems very important to define the second one in order to understand the first.

Then, colonial is the quality of something of a foreign origin that occupies and populates a place. This adjective can be seen as an aesthetic expression.
A colonial architecture is the spatial appropriation of space by a foreign power that uses logic of dominations. A spatial domination can takes many forms. This is why colonial architecture is often define as the hybridization of a style from a "mother country" that has been transformed by local characteristics.

This logic of domination is inherent to vehicular systems, as well as the wheels of a motor vehicle that crosses a territory.

"Colonialism changed decisively because of technological developments in navigation that began to connect more remote parts of the world. Fast sailing ships made it possible to reach distant ports and to sustain close ties between the center and colonies." [12]

Thus, colonial architecture seems to be intimately linked to technological evolution. Which is not the case for vernacular.

One of the most contemporary expression of a vehicular system is probably modernity. Modernity follows capitalist rules to product generic and standard objects that are spread out over the world.

COLONIAL IN ISOLATED TERRITORIES
Colonial in isolated territories can be defined by the 3 following parameters :

1 - Historical conditions
2 - Colonial Programs
3 - Constructions

Fig. 13

REMOTENESS
[Noun]

"Islandness is an ambiguous concept, partly due to the openness and closure degree of the island boundaries (openness refers to connectedness with the wider world and closure is related to insularity). Such an ambiguity is evident in tensions between islanders desire for autonomy and parity with mainlanders". [12]

R. E. Jackson, *Islands on the edge : exploring islandness and development in four Australian Case Studies.*

In a common sense, the word remote denotes the condition of separation or the degree of connection of entities from others. In a geographical aspect, it is defined in terms of physical distance separating some target groups from nodes of activities. And in the society we are living in, one of the major concerns is how the distances usually restricts the opportunities for interactions and exchanges. Thus, this definition is based on different degrees of remoteness.

When the French sociologist *J.L. Bonniol* write in his study *Micro-insularité et particularisme* [13] that "winds, sea currents, ships and the sea (...) may favor the exchange", he proposes a way to define, through criterion, the relation between a define remote territory and a wider geographical context. In this specific case, the sea plays a role of barrier when a local community does not have the marine technology advanced enough to face the oceanic space.

In order to understand the modalities of remoteness, this thesis focuses on remote communities, spatially defined entities which are distant from where supplied goods, services, and production systems are concentrated.

However, in order to develop a contextual definition, one issue emerges from this method which is the definition of limits. As Cedric Price draws with his scrambled egg, he highlights the degree zero of remoteness. He implies a continuous urban system, without emptiness, without separation. And this condition makes echo to a deep issue anchored in our era, which is the notion of communication.

Indeed, along the development of technologies, the dichotomy between connectivity and disconnection emerges. This relation depends on material and economical factors. As well as geographic and topographical factors. Infrastructures of pylons, masts, satellites and various power sources are some of the typologies of this condition.

THE REMOTENESS OF TERRITORY
Three lens emerge to define the remoteness degree of a territory :

1 - Distance
2 - Infrastructures
3 - Exchanges

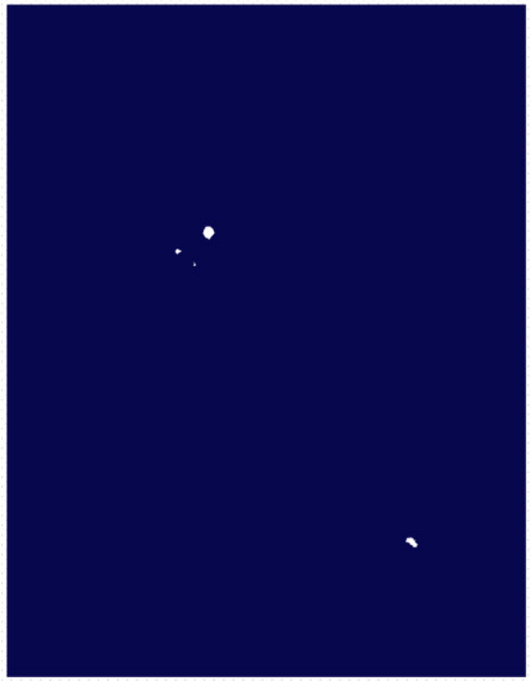


Fig. 14

RESILIENCE
[Noun]

"Resilience is the capacity of a social-ecological system to absorb or withstand perturbations and other stresses such that the system remains within the same regime, essentially maintaining its structure and functions. It describes the degree to which the system is capable of self-organization, learning and adaptation". [14]

Brian Walker and Jacqueline A. Myers.
Thresholds in Ecological and Social–ecological Systems : a Developing Database.

As seen previously with the dichotomy *Adapting versus Dominating*, resilience is a socio-ecological phenomenon resulting from the relationship between a society and its territory. There is no one unique predefined spatial expression of the resilience but many diverse aesthetics coming from the specificities of both societies and territories.

Two examples will be use to illustrate the concept:
The first is Japan society. This country has a long and persistent history of earthquakes, tsunamis, volcanic eruptions and even nuclear disasters (bombs or energy accident). Japanese people live in a very ephemeral places and the society appears completely conditioned by the risk a being confronted anytime to chaos. This is largely why the contemporary Japanese culture emerging from this reality is equally linked to both traditional and high technological values. On one hand there is the believe of a clever vernacular culture that knows how to adapt itself from toughness and on the other hand there is the technology of the modern world that intends to dominate an unpredictable nature.
In Japan, there are manifold spatial expressions of this mechanism, from removable temples to concrete dams.

The Second example is Netherlands. The country is located on lands that are under the sea level. The all territory of Netherlands is artificial. There are pumps, machines, drains, bridges, dams everywhere to maintain a stable situation.

The resilience of an environment, of a culture, or an ecosystem dependents, in a subtle way, to the balance between two pressures. A cultural expression, from the primary conditions of a place on one side and an intrusive system, from exterior influences on the other side.

The biologists know well that complete isolated organic ecosystems are entities destined to disappear.
Indeed, each ecosystem is linked and depends to others systems in a larger environment.

The notion of *status quo* that Jesse M. Keenan defines in the *Journal of Environmental Policy & Planning* [15], echoes the case of these territories : resilience don't always unfold in a straight line. It is a process over time to reach a condition of syncretism.
Indeed, the frictions between natural, political or economical events develop different degrees of resilience depending to specific conditions.
From violent climatic shocks to long term disturbances, each population reacts with different degree of adaptability. This can be read as the "*messy vitality*" described by Robert Ventury (*Learning From Vernacular*).

RESILIENCE OF ISOLATED TERRITORIES
Here, our interest focuses on the resilience in condition of remoteness. It is link to a subversive relation between vernacular and colonial cultures. The thesis defines 3 parameters that shows its spatial expression :

1 - Remoteness degree
2 - Vernacular expression
3 - Colonial expression

Fig. 15

1.4 - Site

ISLAND AS FIGURE

An island is any piece of land that is surrounded by water. Any fixed object lost in the endless extension of an uniform element can be defined as an island.
As such, the island is isolated, detached, surrounded.
An island is elsewhere, far away from the mainlands.
Volcanoes, atolls, rocks, space stations, oil platforms are representations of island : thus island can be artificial or natural.
As a territory, island is an enclosed space where human expansion is limited. Furthermore, the image of an island is often used as the mental projection of a finite world. Island is also presented as the *topoi* where humans project their fantasies on idealized communities and new societies.

The characters of the island described in literature, as seen in 1516's "Utopia" by Sir Thomas More [16], can be read as "ideal" with a rejection of a superficial society. Here, Thomas More defines new ways in which society should relate to nature as a reaction to a perceived widening gap between modern way of living that allegedly corrupts nature, and a more traditional way of living before industrialization.

In the Book, *Atlas of Remote Islands* [17] by Hudith Schalansky, islands are define both as a paradise and hell.

Following the hypothesis and the definitions of the 4 main concepts, vernacular, colonial, remoteness and resilience, the thesis aims to understand and explore the case of island as archetype of isolated territory.
Indeed, island appears as an ideal figure to question the resilience in a remoteness condition.
A place able to synthesize the confrontation between vernacular and colonial architecture.
A place where a modern culture is confronted to the necessity of a site-specific adaptation.

Thus inhabited islands can be seen as microcosms : a community, place, or situation regarded as encapsulating in miniature the characteristics of something much larger; like a world in miniature.
According to Stefania Staniscia [18] in her book, *Islands*: *"the islands are excellent sensors of changes, the insularity is able to synthesize and symbolize the condition on the mainland, it is possible to identify it in islands, with no interferences"*.

As a scientific approach, islands are seen as laboratories to develop an ecosystem model. It's a micro-society focusing in itself a whole of problematics who are usually too complex to investigate directly or without filter.

However there is an abundance diversity of islands depending of the remoteness degrees and natural conditions. In the history of islands colonization between the Greek islands in Mediterranean sea, the Pacific Ocean islands or Atlantic Ocean islands, they all underwent changes. Here, there is a shift from being conceived as prototypes of ideal lands, refuges, to being deliberately engineered as offshore enclaves of parent states. Then we consider essential to define the types of natural islands due to their great diversities, cultures and locations.

In *Iles Désertes* [19], Gilles Deleuze divides two kinds of Islands regarding geographical definition, the continental and the oceanic :
"Continental islands are accidental, derived islands. They are separated from a continent, born of disarticulation, erosion, fracture; they survive the absorption of what once contained them.
Oceanic islands are originally, essential islands. Some are formed from coral reefs and display a genuine organism. Others emerge from underwater eruptions, bringing to the light of day a movement from the lowest depths. Some rise slowly; some disappear and then return, leaving us no time to annex them."

Following Deleuze's text and *San Rocco* revue [20], oceanic islands are the radical island, truly isolated not only in space but also in time. Because they have no past, they are immediately a *new world*, the reconstruction of an utopia. They are a miniature that need to contain everything because they cannot rely on anything else.

Our research looks at truly isolated islands where the distance with the mainland is long enough to create an asynchrony effect with global systems (of transport, market, production...). A place of seclusion define by natural borders. In other word, an island as a natural fortress where the space for a urban development is limited while everything need to be contain inland.

Our interests focus on the resilience of a isolated community. This is why the thesis is not looking at uninhabited wild islands.

Regarding these conditions, it seems that inhabited oceanic remote islands are the right places to locate the thesis.

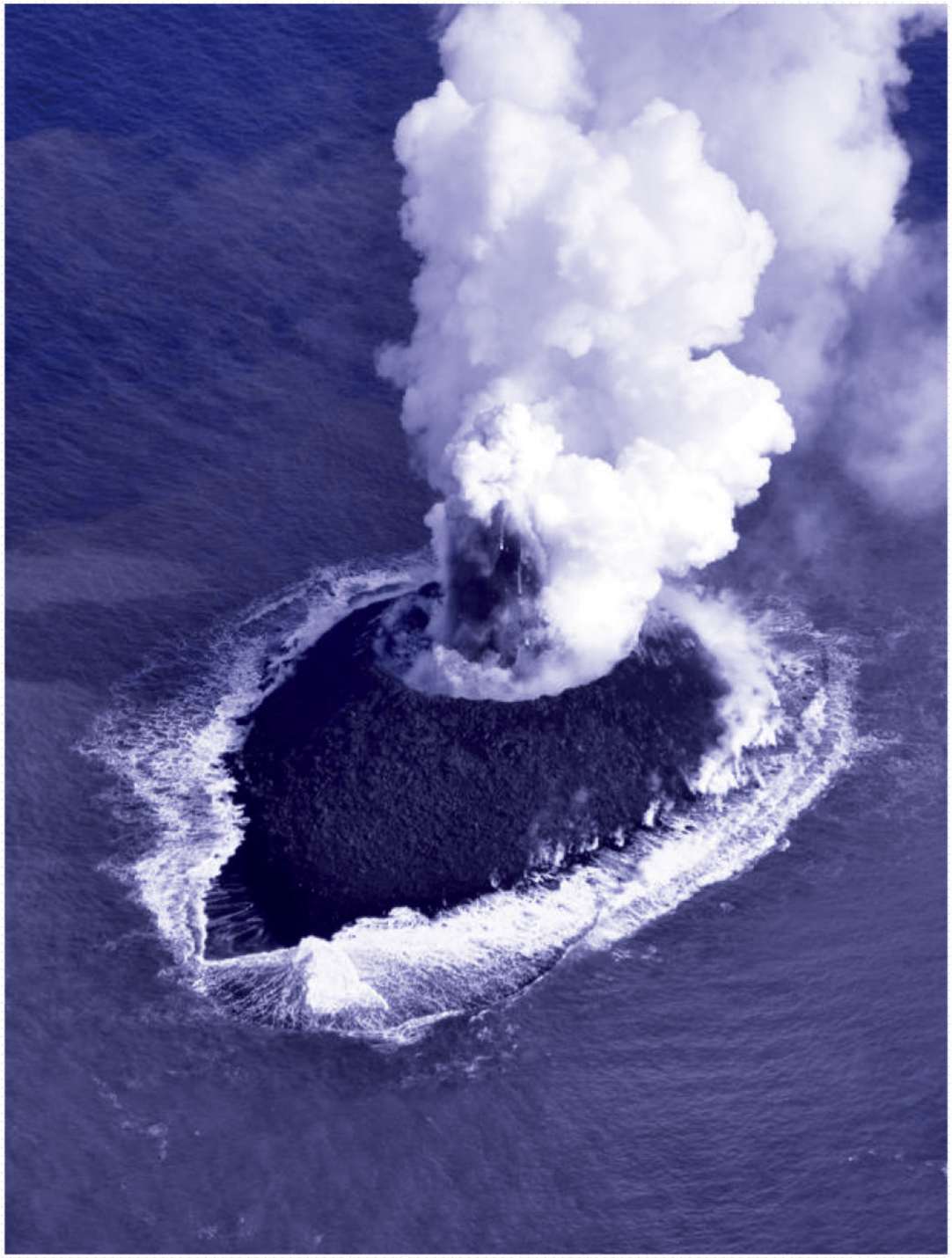


Fig. 16 : Birth of volcanic island Eruption at the southeast of Nishinoshima Island, Nov.2013

SOUTH-ATLANTIC ISLANDS

Lying in the southern Atlantic ocean, far away form any continental land, a series of three small islands belonging to United-Kingdom appear as bizarre lands lost in the infinite surface of the ocean.

As the forgotten pieces of the fallen British Empire, Saint Helena, Ascension and Tristan Da Cunha are true oceanic islands of volcanic origin.
There are actually very few inhabited islands on the South-Atlantic Ocean. Despite Falkland islands, these three islands are the only ones to host permanent settlements. South-Georgia and South-Sandwich islands, Bouvet Island, Trindade Island or Saint Peter and Saint Paul archipelago are all empty wild islands only intermittently inhabited by scientists.

From an outside view, these islands appears as paradises. They all have a very homogeneous climate, temperatures never dropping below 10°C over the year with incredible volcanic landscapes and very exotic species. There are peaceful places outside the tumult of the metropolitan areas. The are perfect places for writers, impressionist painter or philosophers.

However, these oceanic islands are not *bucolic Arcadia*, they are hostile environments ignored by first explorers as possible home due to its rugged mountain landscape, absence of natural harbor or lack of lands and suitable climatic condition for agriculture (strong Wind and rough sea). They are natural strategic fortresses who hosts military camps, signals intelligence facility, orbital debris observatory, scientific stations or infrastructures of communication. There is for example, more antennas in Ascension Island than islanders.

Saint-Helena, Ascension and Tristan Da Cunha share a very common history and similar conditions despite the very large distances between them :
The three were all formerly separate colonies of the English crown and have been discovered by Portuguese navigators between 1502 and 1504.

They all still strongly belong to United Kingdom after have been artificially colonized by British settlers between the 18th and 19th Centuries.
The East India Company used them for their strategic positions. The three host endemic species with wild vegetation. Saint-Helena is a British dependency since 1657 while Ascension and Tristan have been garrisoned from 1814/1815.

The circles of the next map *Location and Distances* show the distances between each island and its nearest inhabited land. The nearest inhabited land for Tristan Da Cunha and Ascension is Saint-Helena lying respectively at 2000 km Northeast and 1'300 km Southeast.

These islands are somewhere between Brazil, Angola and South-Africa in the middle of a very deep and unknown territory.
These islands are not simply far way from anywhere, they are also very difficult to reach.
On Acension, there is a military airport with restricted access. One old and brave Royal Mail Ship serves Saint-Helena with regular shuttles continuing to Ascension but an airport is under construction.
The case of Tristan is very singular, there is no place for an airfield and no proper port. The only regular ship coming there is an olde South-African trawler making the journey only once a month for fishing business and small goods. Once a year, in September the *S. A. Agulhas II*, a fresh South African ice-breaking polar supply and research ship passes by Tristan Da Cunha for annual relief and supplies. It brings also 20 tourists passengers.

Called *The British Overseas Territory of Saint Helena, Ascension and Tristan da Cunha*, it was Known as Saint Helena and Dependencies until the 1 September 2009, when a new constitution came into force giving the three islands equal status within the territory.
This constitution is divided in three chapters, one for each island. It also includes the *fundamental rights and freedoms of individuals.*

Saint Helena has a Governor and a Legislative Council while Tristan Da Cunha and Ascension have an Administrator and an Island Council composed of Islanders. The Governor of Saint Helena is the British monarch's representative across the overseas territory.

Regarding this description it seems that theses three islands are the ideal locations to explore the resilience of isolated territories and its related dichotomy vernacular versus colonial.

Part	Crown representative	Council
SH	Governor	Legislative Council
AS	Administrator	AS Council (5 councilors)
TDC	Administrator	TDC Council (12 councilors with 1 chief Icelander)

SH : Saint- Helena / AS : Ascension / TDC : Tristan Da Cunha

Table 1 : Constitution of the three Islands

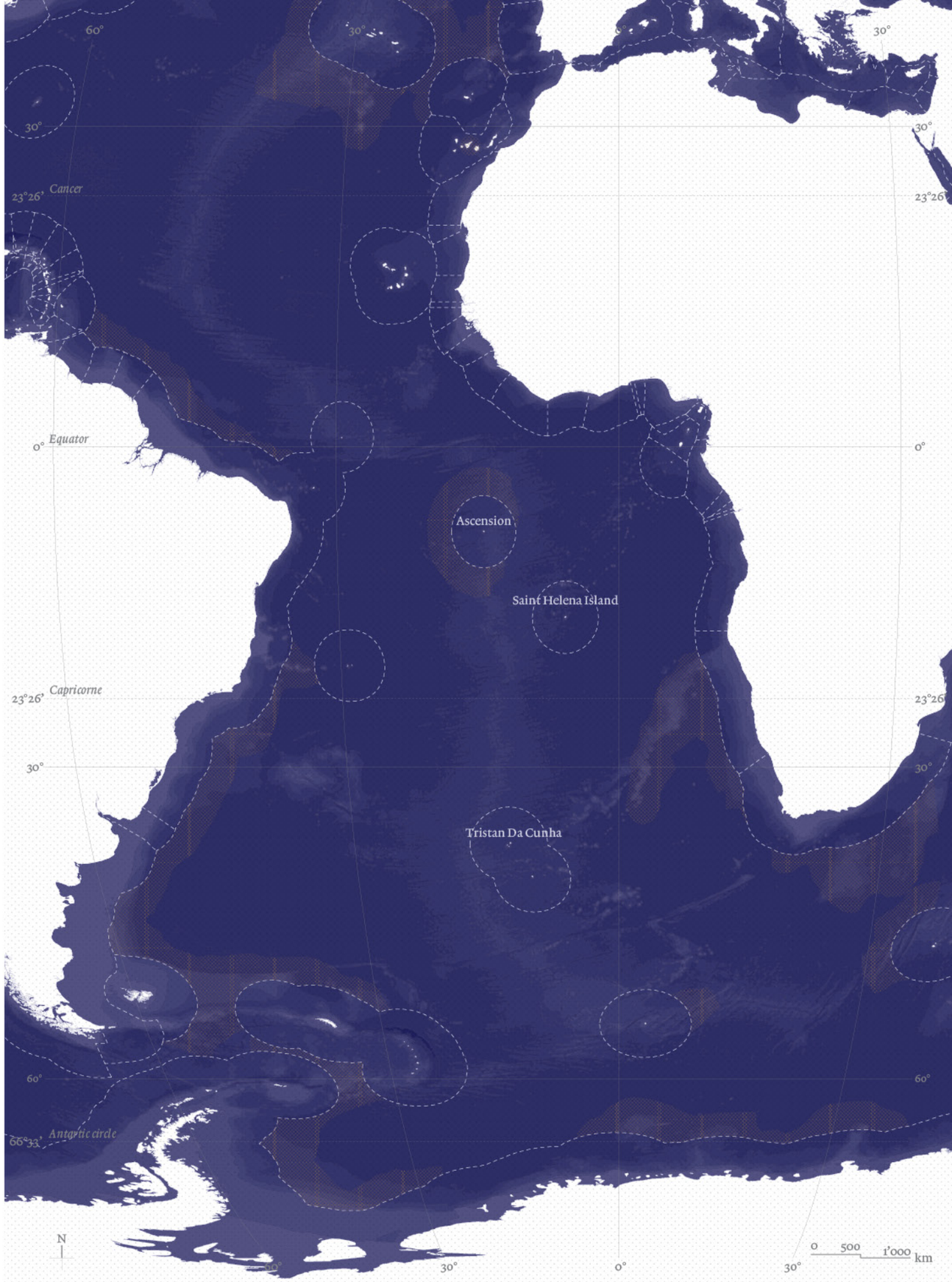
South-Atlantic Map - *Location & Distances*
1/50'000'000

Fig. 17 : RMS *Saint-Helena*, since 1989 — One of the last four Royal Mail Ships in the world. The only combiliner that serves the British overseas territory of Saint Helena.

Administrative area	Area (Km²)	EEZs* Area (Km²)	Population (2008 census)	Administrative Center
Saint-Helena Island	122	444'916	4'225	Jamestown
Ascension Island	88	441'658	884	Georgetown
Tristan Da Cunha Archipelago	184	754'720	268	Edinburgh of the Seven Seas
Tristan Da Cunha	98		268	Edinburgh of the Seven Seas
Inaccessible Island	14		0	
Nightingale Island	3.2		0	
Gough Island	68		6-10 (not permanent residents)	Transvaal Bay
Total	394	1'641'294	5'377	Jamestown

*EEZs : Exclusive Economic Zone; it is a sea zone (of 200 nautical miles) prescribed by the United Nations Convention on the Law of the Sea over[21].

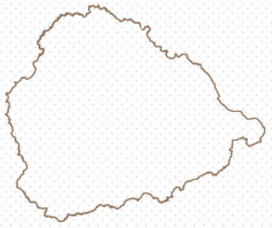
Table 2 : Administrative areas & population of the British Overseas Territory



South-Atlantic Map - *EEZ & extensions*
1/50'000'000

SAINT-HELENA
Latitude / longitude : 15°56’ S / 5°43’ W
Postcode : STHL 1 ZZ
Population : 4’225 inhabitants
Language : English
Currency : St Helena Pound (Sterling)
Capital : Jamestown
Area : 122 km²

ASCENSION
Latitude / longitude : 7°56’ S / 14°22’ W
Postcode : ASCN 1 ZZ
Population : 884 inhabitants
Language : English
Currency : St Helena Pound
Capital : Georgetown
Area : 88 km²



TRISTAN DA CUNHA
Latitude / longitude : 37°6’ S / 12°17’ W
Postcode : TDCU 1 ZZ
Population : 268 inhabitants
Language : English
Currency : Pound Sterling
Capital : Edinburgh of the Seven Seas
Main island area : 98 km²

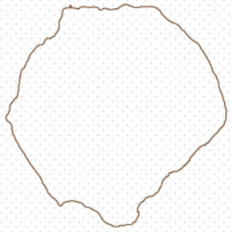


Table 3 : British South-Atlantic islands, coordinates & numbers

Fig. 18 : Greeting from South-Atlantic Islands

Postage stamp is one of the main export items for each of the 3 islands

OCEANIC TERRITORY

Medieval and Renaissance cartographies were dedicated to the exploration of vast surfaces, in which nautical charts were the guidelines to mainly follow, and sometimes discover the unexplored oceans as did Vasco da Gama, Ferdinand Magellan or other Portuguese and European navigators. These charts were in part determined by the nature of local winds and currents and never led to ships' losing sight of land for more than two or three days[22]. By doing so, these charts were the tools that recorded the first achievements of South Atlantic exploration, indicating archipelagos and the gradually emerging features of the coast of Africa.
The cartographic representations were presenting a system of locations and paths, successions of the named cities on the coastline. The uninhabited lands and oceans were seen a similar system.

This technology, influenced the precision as well as the thinking of the land as *landing points* changed the way to think the landscape. Indeed, it was progressively replaced by nautical charts and atlases based on geographical coordinates (which were generally produced outside the concerned area by government agencies). Ultimately, the conquest of the oceans made navigation by indications of latitude a necessity.

FROM TERRA INCOGNITA TO NETWORKS

The 20th century was the era of global mapping[23] After the discoveries era, along with a global economy growth, mapping practices became more nearly ubiquitous. Indeed, the need to regulate domestic economies in support of a global competition, made mapping a fundamental activity of governmental administrations.
The Atlantic Ocean remains a manifest to understand the evolution of the navigation, and so, the perception of the old and new *Empires* governance.
However, the oceans remain part of a mystery in a lot of aspects, in-between the desire to control and the reality of the seas, punctuated by mythologies and harsh environments. The South Atlantic Islands were particularly the theater of shipwrecks.

Islands played an essential part in the maritime expansion of the British Empire as well as technologies played a major role in the development of the maritime network.

The sea tracks of long distance steamships fostered this sense that the British Empire dominated the world. One could travel in British or international waters throughout one's voyage passing by British Isles. Along this extended governance, the British Navy established an extensive network of safe harbors and refueling centers in the South Atlantic among other oceans (North Atlantic, Pacific Ocean, Indian Ocean). Distance and remoteness slowly stopped to be opposite notions, producing paradoxical situations.

Ascension island, Saint Helena island, Tristan da Cunha are paradoxical fragments of the British Empire. Today they are not anymore, located on the main maritime routes; they are floating pieces, in the edge of the explored oceans.

New technologies, notably aerial photography and later satellite sensing, allowed the industrial societies to implement what was only imagined in earlier centuries: the transformation of *terra incognita* into known and mapped spaces. Modern mapping tools permeated all corners of the territories.
Indeed, shipping within maritime routes became the trigger to develop industrial production in a global scale.

In 1869, the Suez Canal, and in 1914 the Panama Canal, reinforced the trend to use maritme routes to trade. The economy of the supplying places outside these trading corridors began decline. It created a path from a production location to a landing point destination. Then, the divide between over-exploited and under-exploited territories increases as human advances in technology.

As around 90% of world trade is carried by the international shipping industry.

The concept of remoteness is fundamental in the understanding of the contemporary role of islands.
The *geographic continuum* is what constitutes the actual thinking of the oceans, confronting the other part, the marginal borders.
Indeed, the intangible limits of the southern maritime territories, with South Atlantic Ocean and Southern Ocean, create a 20 million sq kilometers non-limited horizon.
The technology plays here a essential part : from the paddle, through the sail, to today's cargo propelled by fuel, the trend leads to an extent of the ships autonomy. The distances that explorers considered vast, are now just simple factors in the current economic strategy.
Then oceanic islands are often part of another logic of development. In the peripheral south hemisphere, composed of 80.9% of water, these floating points are perceived with a septic glance.
South Atlantic Islands are non-economic alternatives. And so, border regions are difficult governed environments, sources of conflicts.

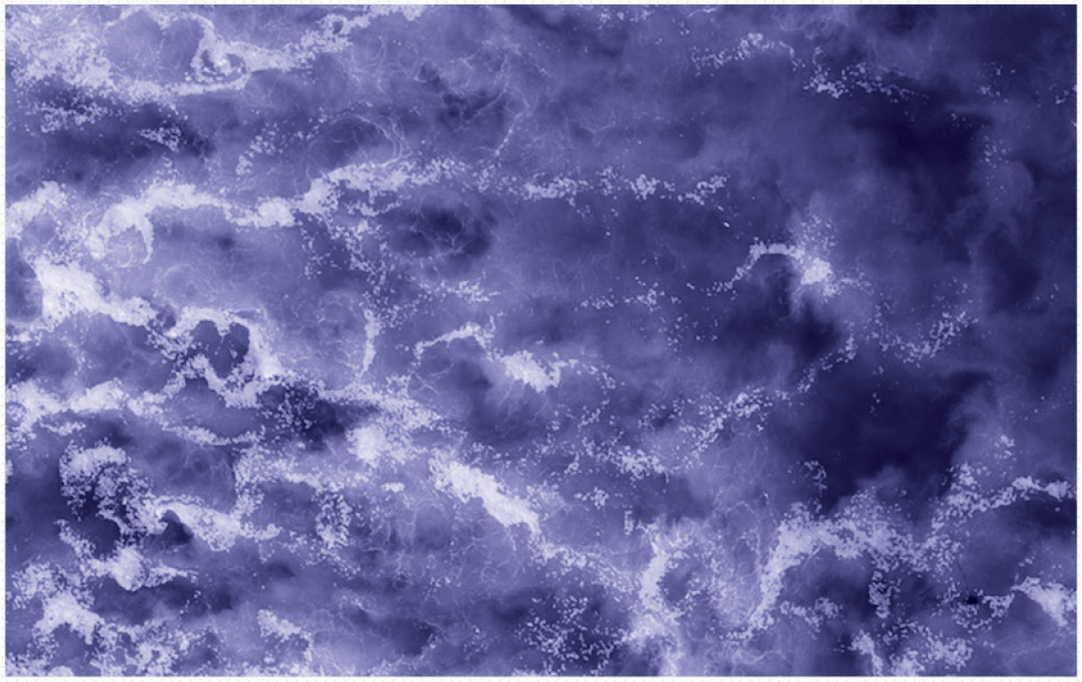


Fig. 19 : Stephan Zirwes *Water field*

Fig. 20 : *Cantino planisphere*, 1502 Biblioteca Estense, Modena, Italy.

1.5 - Methodology

FICTIVE TRAVEL

The thesis it's not a catalogue and neither an atlas of remote islands. However it can be read as a fictive travel through three British inhabited islands we never have the opportunity to set foot on. This to understand the phenomena of resilience in condition of remoteness and their spatial expressions through both vernacular and colonial architectures.

As a journey along a very unique territory, the thesis is about to explore places where the ordinary cross the marvelous, where the everyday banalities face the harsh constraints of an isolated life, where the Nature reminds us of its dominant power.

"Paradise is an Islands. So his hell" [24]

CONTENTS

The two following chapters II and III (*Vernacular* and *Colonial*) will focus on the observation of the vernacular and colonial expressions found in the territories of the islands.

Chap II and III will be treated as mirrors; The previous definitions (Vernacular, Colonial, Remoteness and resilience) will be used as a guideline to organize the investigation.
Theses chapters are the backbone of the research. Most of the facts, maps, diagrams will be gathered in these parts.
Observations will be made with the most scientific approach as possible.

As moment of discussion, the chapter IV *Resilience expressions* will define the conditions that define the remoteness degrees between the islands. The chapter will continue by exploring the spatial expressions of the resilience and its related aesthetic. The concept of Imported vernacular will be introduced in this part. Each islands developed through time different degrees of resilience and three maps of the islands will summarize the oriented discussion.

The conclusion in chapter V *Towards an Imported Vernacular* will follow the discussion.
Here, the research will try to establish the conditions that define an architectural language regarding the aesthetic expression of the resiliences in isolated condition.

This will show an essay with some references organized by typologies and also the limits of such attempt.

The Chapter VI *Feasibility Study,* will propose recommendation for future investigations. It will explain where the research drove us and what kind of diploma project could be achieve for the next semester.

META-DATA & MAPPING

As some may know, data and maps of isolated places are very difficult to find.
Sometimes they are incomplete or even non-existent and needed to be re-draw.

The research of meta-data took times and needed the collaboration of the *South-Atlantic Environmental Research Institute* with the precious help of two engineers who worked on Tristan Da Cunha and Saint-Helena.
This was the only way to be well educated on these territories.

Two types of map were drawn : One describing the situation in the scale of the all South-Atlantic Ocean 1/50'000'000) and an other one focusing on the islands (1/110'000 and 1/60'000).

The thesis uses public data (from scientific researches, governmental documents or earth observatories), digital raster data (pictures, old drawings, paintings) and digital vector data (plans and maps in .shp format).

All the documents used and produced are organized in 4 lists :

- Fig. / Figure
- Table
- Diag. / Diagram
- Map

The research intends to develop a reflection regarding historical facts, technological evolutions and social components.

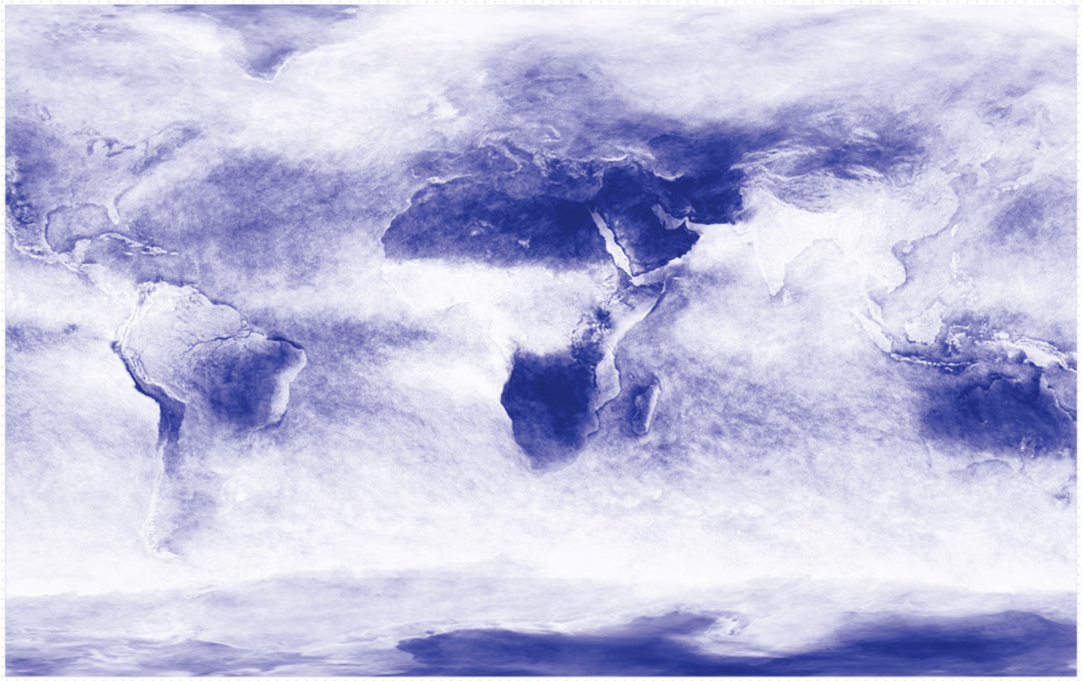
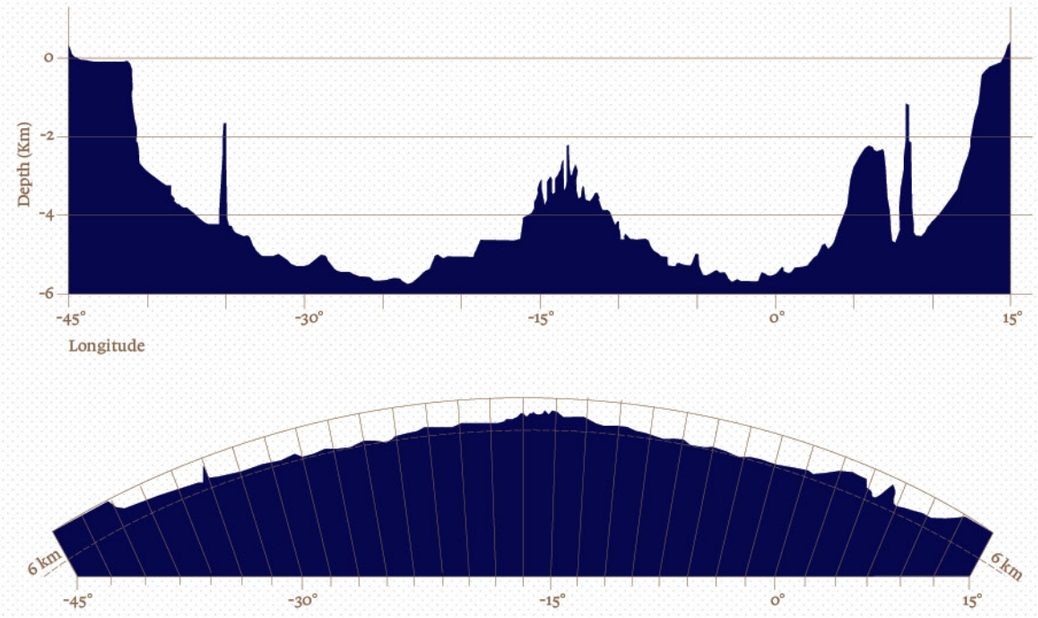


Fig. 21 : Earth Observatory, NASA *Monthly average of Cloud Fraction*, October 2015

Fig. 22 : Jacques-Nicolas Bellin *Map of Saint-Helena Island*, 1766

2.1 - Introduction to South-Atlantic ocean

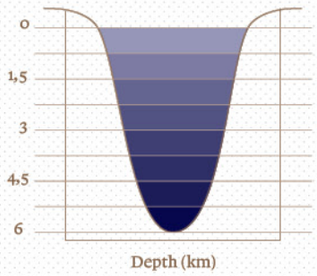
BATHYMETRY



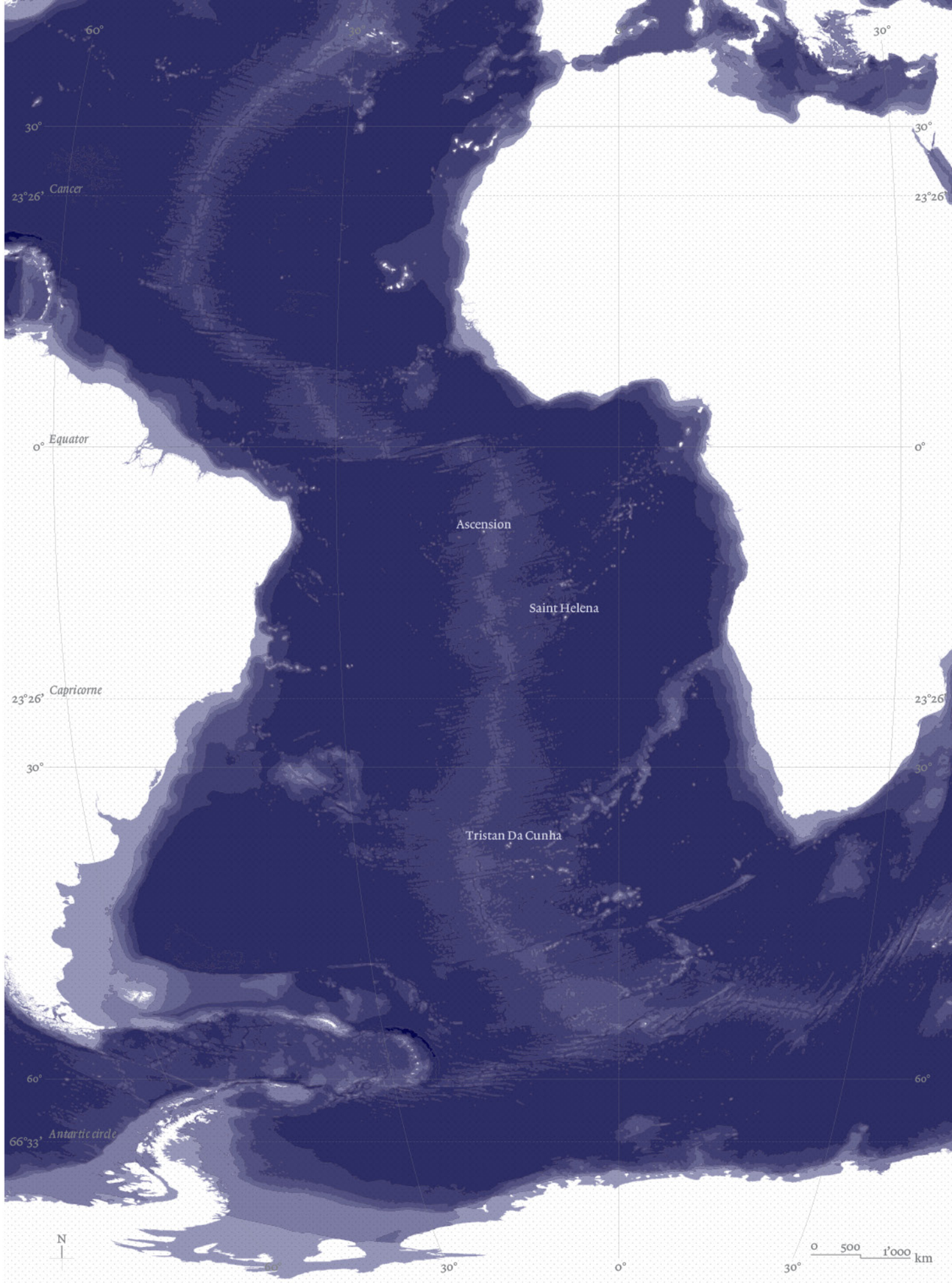
Diag. 1 : South Atlantic Ocean cross sections

"Such islands are uninhabitable but gradually, as the lava cools, they begin to support life. It may, however, take hundreds of years for plants and animals to become established."

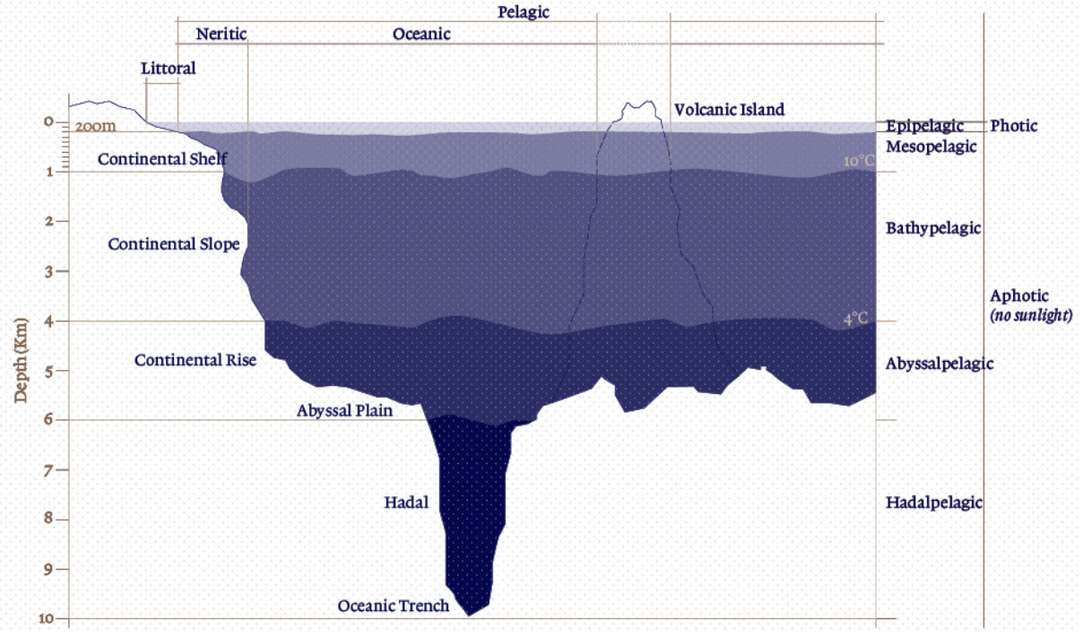
Oceanic Islands : treasures islands in
World Wide Fund For Nature website, 2015



South-Atlantic Map - *Bathymetry & relief*
1/50'000'000



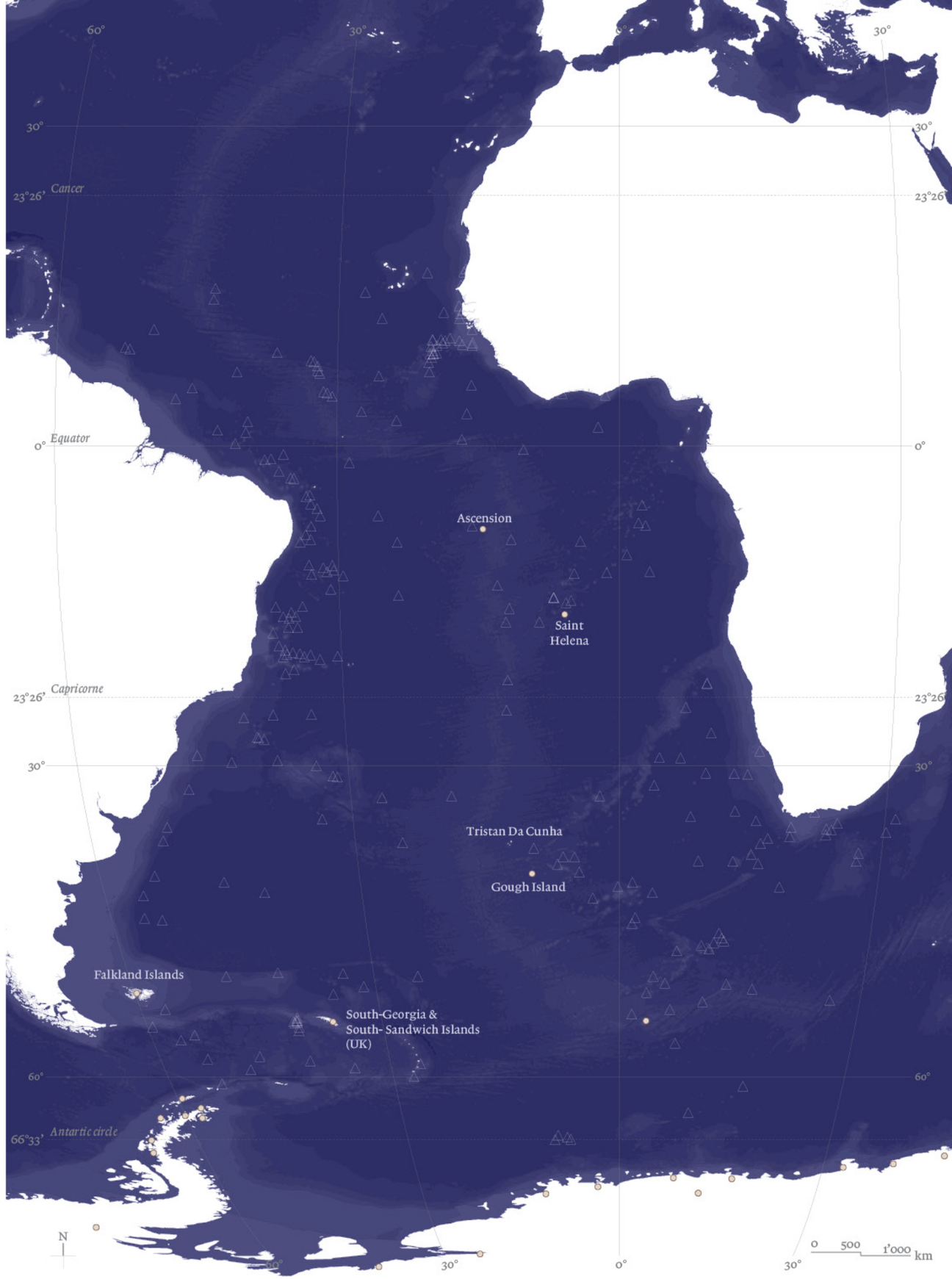
BATHYMETRY



Diag. 2 : Oceanic divisions and seabed structure

"Oceanic islands are originally, essential islands. Some are formed from coral reefs and display a genuine organism. Others emerge from underwater eruptions, bringing to the light of day a movement from the lowest depths."

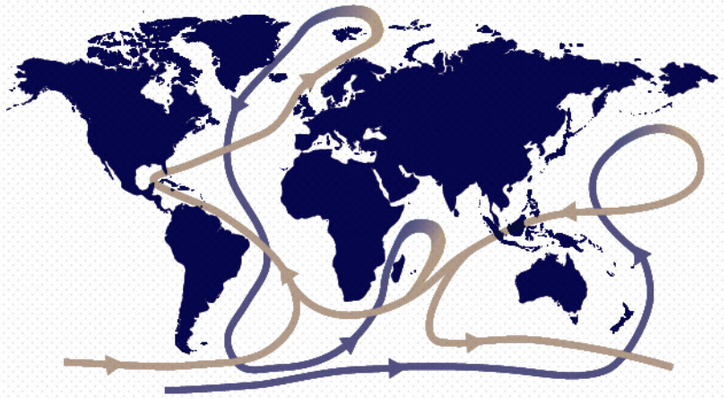
Gilles Deleuze, *Desert Islands and Other Texts 1953-1974*



Seamount △
Permanent Scientific station ●

South-Atlantic Map - *Oceanic islands & Seamounts*
1/50 000 000

CLIMATE

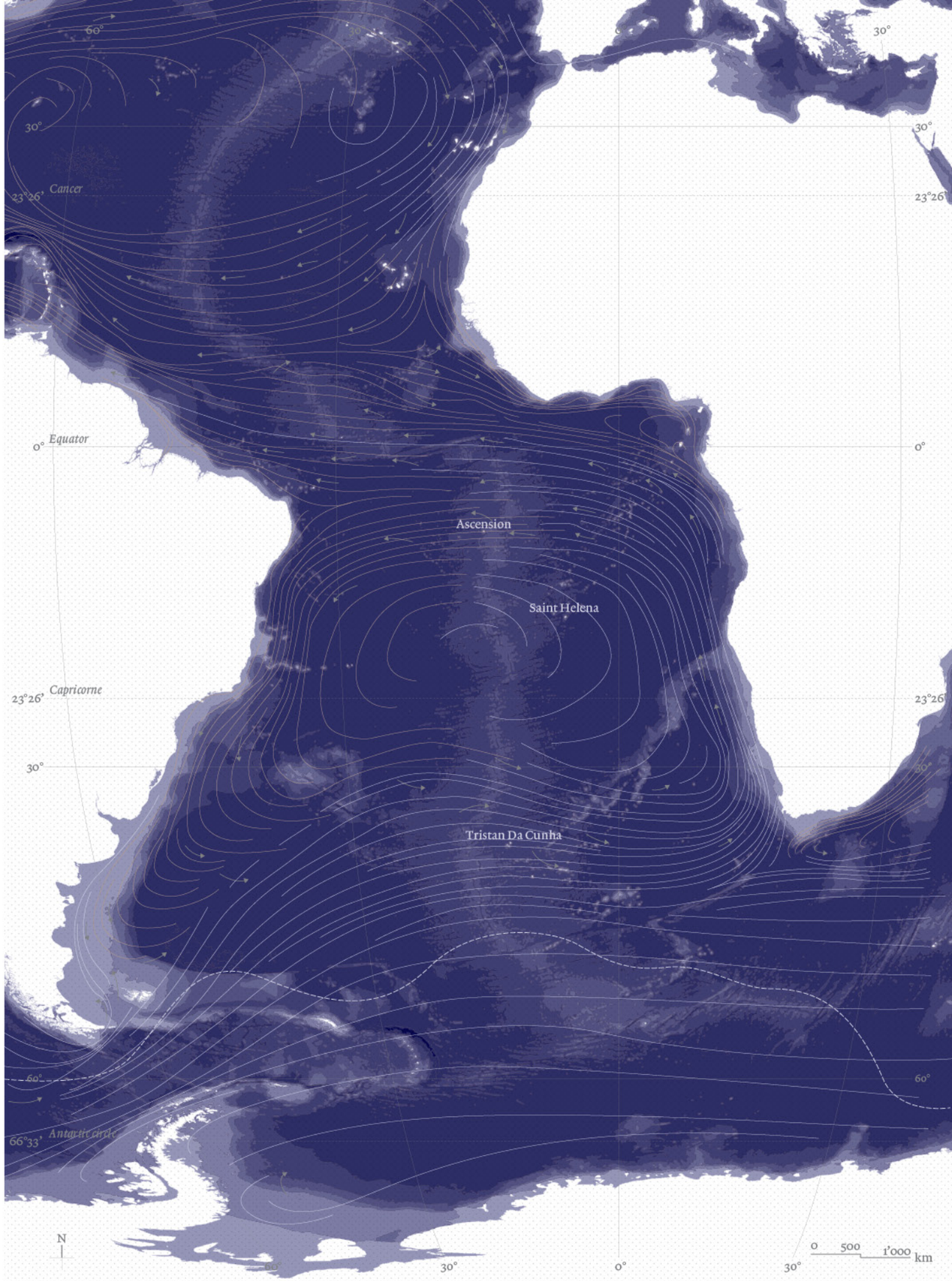


Diag. 3 : Ocean conveyor belt and currents

Saint-Helena climate : *Tropical Pluvial*
Ascension climate : *Tropical Desertic*
Tristan Da Cunha climate : *Temperate Oceanic*

"The Atlantic, but not the Pacific, has a net transport of heat from the southern into the northern hemisphere, mainly because of an intense, cross-equatorial coastal current in the Atlantic."

S. G. Philander, *Atlantic Ocean equatorial currents,*
Princeton University, Princeton, NJ, USA, 2001.



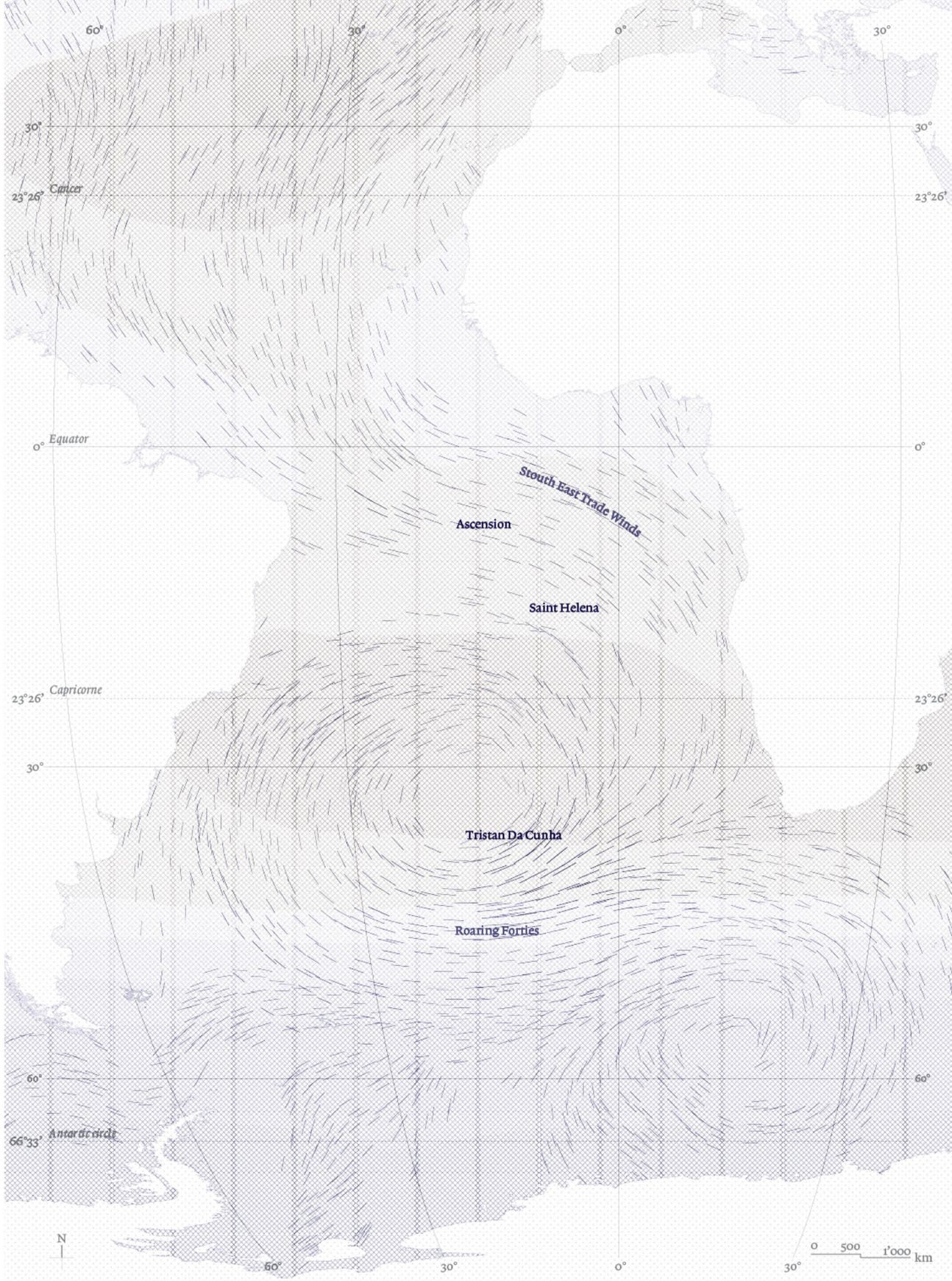
Direction
Cold currents
Hot currents

South-Atlantic Map - *Currents*
1/50'000'000

Fig. 1 : Inflatable boat on the way to Nightingale Island, Tristan da Cunha Archipelago Photograph by UltraPanav.

"The anticyclonic surface winds of the South Atlantic are controlled by the position and intensity of the South subtropical high pressure zone."

Semyon A. Grodsky1 and James A. Carton, *Influence of the tropics on the climate of the South Atlantic*, Nov. 2005



Atmospheric pressure in Millibar at Sea level :

1025

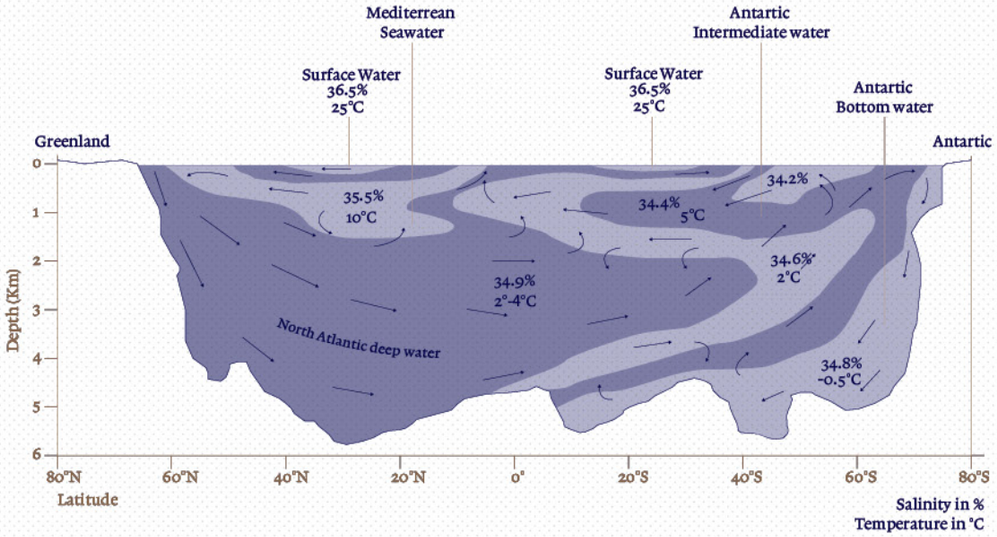
1015

1000

Prevailing winds

South-Atlantic Map - *Wind & Pressure* 1/50'000'000

CLIMATE

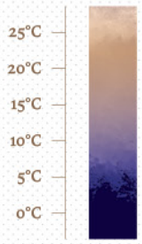


Diag. 4 : Atlantic Longitudinal Section - Salinity & temperature

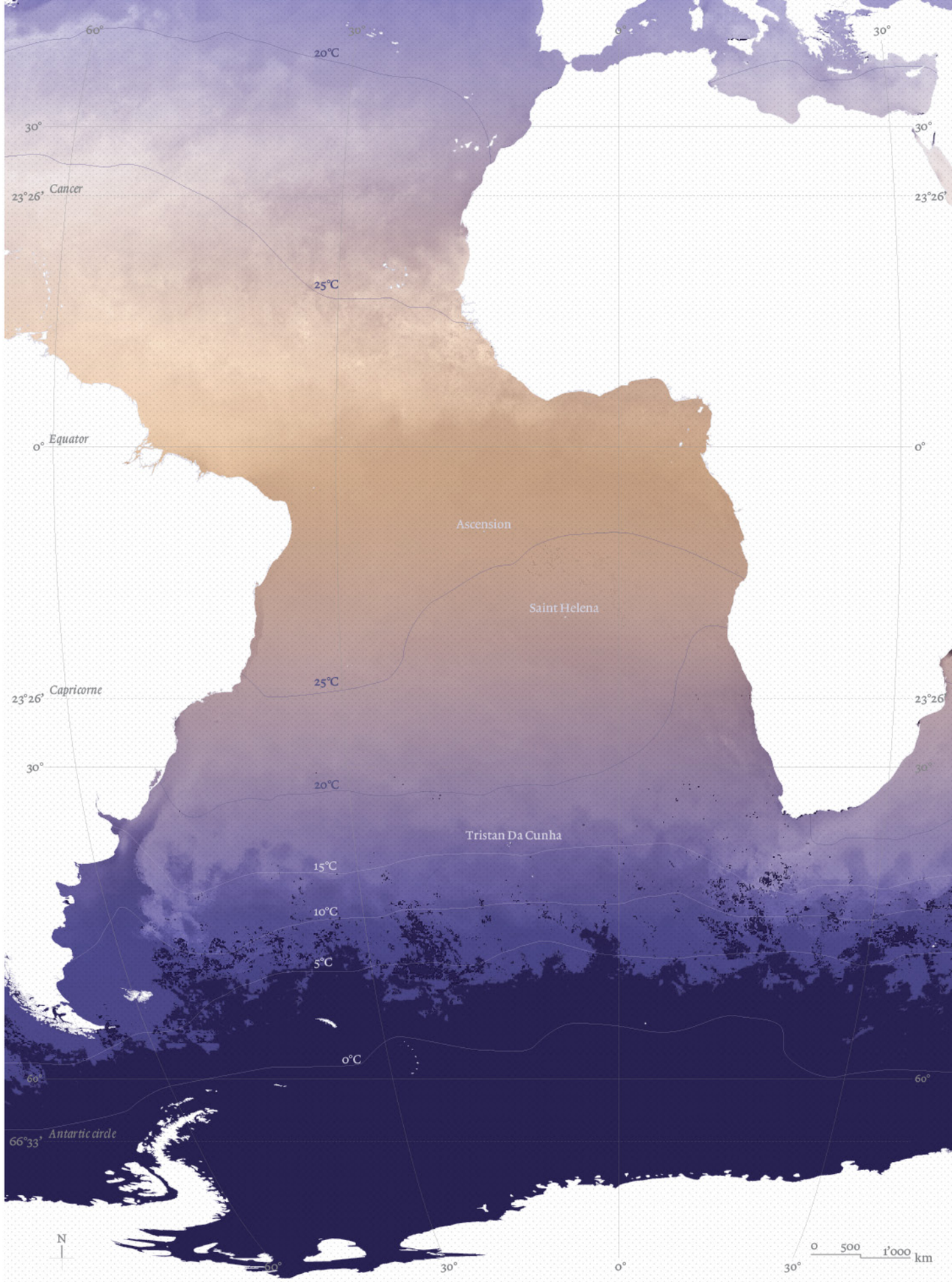
"The equator variability is introduced through local and remote air-sea interaction, both of which may cause the trade winds along the equator to relax, allowing an eastward surge of warm thermocline water into the normally cool eastern Gulf of Guinea."

Semyon A. Grodsky1 and James A. Carton, *Influence of the tropics on the climate of the South Atlantic*, Nov. 2005

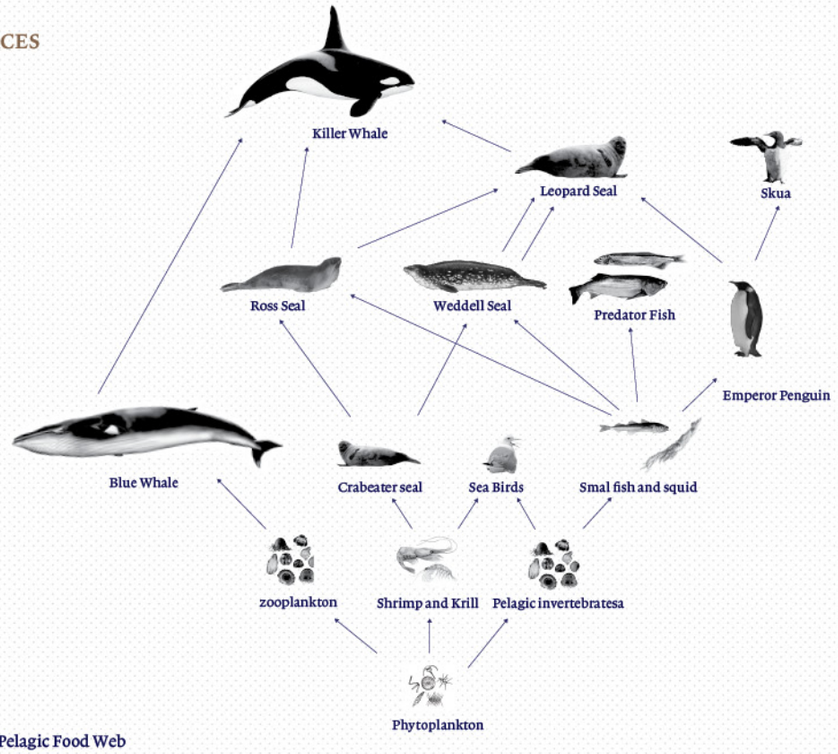
Repartition of the warm waters in the South Atlantic Ocean :



South-Atlantic Map - *Annual Average of Sea Temperature* 1/50'000'000



RESOURCES

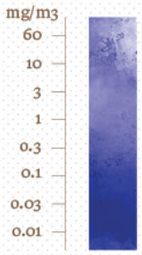


Diag. 5 : Pelagic Food Web

"Chlorophyll measurements give scientists valuable insights into the health of the ocean's environment. Most phytoplankton blooms are a sign of good health, such as the large blooms occurring every spring in the North Atlantic Ocean."

NEO, NASA Earth observation
About the dataset chlorophyll concentration

Chlorophyll concentration is used to determinate the quantity of phytoplankton in the ocean :



South-Atlantic Map - Chlorophyll concentration
1/50'000'000

2.1 - Vernacular Expression

NATURAL CONDITIONS

The fundamental role of the site, of the specificity of a place lies in the reaction toward it. Indeed, the natural conditions, primary features of a territory are a matrix.

And by using this latter, vernacular values tend to appear and support the territory appropriation.
In the perspective of gathering the vernacular expressions as "emergences of the site", we first need to understand and note the aesthetics of the different locations. Indeed, the three islands of Saint Helena, Ascension island and Tristan da Cunha tend to embody variations and number of similarities.
The result of this work focus, through an analytic observation tend to be an abstract of the situation. Under a graphic and writing production, we try to highlight the primary conditions of a natural environment.
The use of different level of observation allows the global approach of the place. Then the site is composed of many layers. From the fauna&flora to climate or geomorphological entities, the understanding of the territory is the base of the appropriation patterns.

HUMAN SETTLEMENTS

The constitution of an human settlement lies in the subsistence resources availability in the surrounding landscape.
Then, the persistence, as a durable establishment in a location tend to creates a territory. Indeed, beyond the use of the land, the limitation of the settlement is necessary. And in parallel, the capacity of shaping the landscape developed.
The geographers show us well this dilemma between the use, the definition and the perception of the limits of the settlements. Even more our days with the urban sprawling. Thus, the observation of the modalities of colonization is fundamental to understand the vernacular gestures. Always from one location to another, one adapts to the surroundings and settles.
The colonization of Saint Helena, Ascension and Tristan da Cunha also enters in the confrontation between a population and a place. However, the condition of the remoteness condense these reactions and reinforce the primitive attitudes toward the landscape.
The expression of a community and villages is the reaction of these primitives settings.

Fig. 2 : James P. Blair, *Men stand beside a volcano's crater eighteen months after an eruption on Tristan da Cunha Island*, National Geographic, 1964.

Fig. 3 : Stuart Planner, with MWAI Arch. and PLC Arch. *Jamestown, a vision for 2020*, p29, 2010.

CONSTRUCTIONS

Similar to the gesture of Derzu Ousala as we develop at the start of this thesis, the reflex to shelter from the surrounding environment is a primitive use.

As result, local and specific use of materials tend to appear on the territory. Their are the vernacular constructions of the communities, and express the culture of it.

In order to understand these elements, it is necessary to detect the key features of the culture of the place. Certainly, the reinterpretation of the local isn't an obvious pattern, and one need to examine it deeply.

Thus, in this chapter, we try to observe the exterior symbols and physical manifestations of in situ. The architecture as we think it in this text lies both in the territorial and punctual entity and focus on the spatiality of the towns expressions.

Indeed, Bernard Rudowsky in his book *Architecture without architects* tries to extract these reactions as a catalog. Subtractive, additive, troglodytes or others attitudes are thus deeply linked to the availability of resources. Along the same focus, we note the relation between what is a colonial and vernacular.

MAP

Although the earliest maps known are of the heavens, geographic maps of territory have a very long tradition and exist from ancient times. The word "map" comes from the medieval Latin Mappa mundi, wherein mappa meant napkin or cloth and mundi the world. Thus, "map" became the shortened term referring to a two-dimensional representation of the surface of the world.

The mapping as we imagine it, is a medium to express different scale at the same time. Indeed, the superimposition of geographical, social and economical layers gives us the possibility to create a portrait of each one of the South Atlantic ocean islands.

The territorial, architectural and constructive give a overall understanding of the landscape aesthetics. The precision of the data employed, from the South Atlantic Environmental Research Institute among multiples sources, bring a documentary value.

However, as cultural object, the maps are delicate to manipulate. Despite it, this study try to show the different sides of the vernacular expressions, and bring a transversal picture of the complex phenomenon.

Fig. 4 : James P. Blair, *Men work to build a new road across a lava field*, National Geographic, 1964.

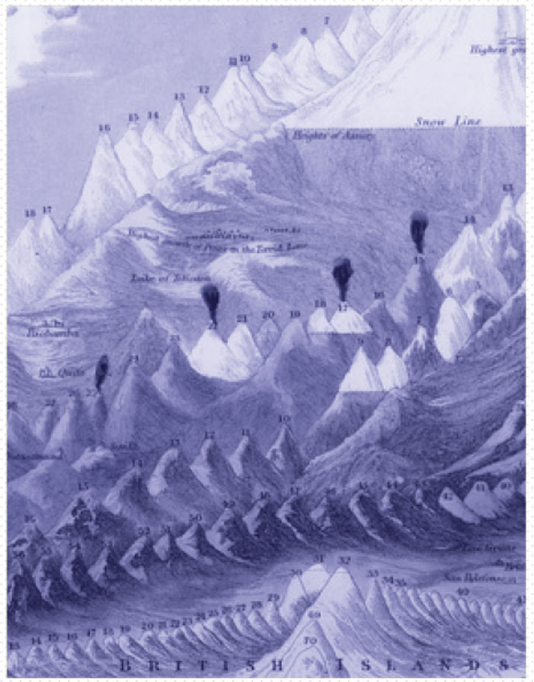


Fig. 5 : Hall, Sidney and Hughes, William, *Atlas Map, Physical Geography : Edinburgh*, 1854.

2.3 - Saint Helena

VERTICAL RED CLIFFS

GEOLOGY

Saint Helena is a young island compared to the other emergences on the South Atlantic Ocean Ridge. The origin of Saint Helena lies in the outpouring of molten, basaltic rock emerging from the two tectonic plates, creating hot spots all along.

Composed mainly of volcanic structure that spreads for 3 kilometers under the surface, the island creates a shard in the ocean floor. The surface is only the emerging part of this natural presence of nearly 130km in diameter at the base.

The shape itself was created by the successive flows and eruptions of two volcanoes, eroded and flattened by the millennium. However, due to the pressure of the plates, this piece of land moved from the middle of Ocean toward the African continent, finding its place today.

If we look closer at the geological conditions, the island is separated into many volcanic stone fragments following the last eruption. Indeed, the latter, following a more complicated pattern, occurred to the south-west, around Sandy Bay, between 10 and 7 million years ago, which partially overlaid the old volcano (Diag. 5).

TOPOGRAPHY

As the volcanic activity extincted, the erosion and the ocean's natural pressures shaped Saint Helena as it is today. Weathering created peaks or hills where mountains where before and, falling from the geographical center to the coastline, carved these red cliffs.

Then two radical physical phenomenon appear : truncated peaks, nearly flat, vertical vertiginous cliffs and deep many natural valleys (Fig. 6).

The confrontation of multiples landscapes tends to create many natural access, ending by black sand beaches. Each of these ones continue as number of paths toward a more protected and less eroded landscape (Diag. 4).

CLIMATE

One of the most intriguing systems in Saint Helena is the weather and within the island, the micro climates which reinforce the topographical condition. Indeed, St Helena's climate is controlled by the "South Atlantic High", a semi-permanent pressure centered around 25°S, 15°W, affecting greatly the weather conditions and temperatures. The winds rise from the bottom of the cliffs to the peaks, creating an strong erosion in the border parts of the landscape (Fig. 7).

Despite the coordinates of the island in the middle of the tropics, the temperature is constant, mild.

As the weather is very changeable from the location within the territory, Saint Helena doesn't contain storms and extreme weather patterns (Tab. 1).

Indeed, the seasons alternate from high temperatures months around January/March to low, cold temperatures in June/September.
Then, it oscillates between 20°C and 27°C in average most of the year. However, a rainy period is created around April as the clouds remain and gather on the most height part of the landscape.

This phenomena creates, here again, some variations in a subtle and more fine patterns. While Jamestown remains around 20°C - 32°C, the temperature in central areas reach 10°C - 20°C, highlighting the noticeable contrast in climate, opposing misty higher areas to sunny Jamestown (Tab. 2 & Tab. 3).

VEGETATION

"It is believed that St. Helena once had substantial forests at elevations ranging between 400 and 600 m, primarily composed of gumwood".

Leann Trowbridge, *WWF South Atlantic Ocean.*

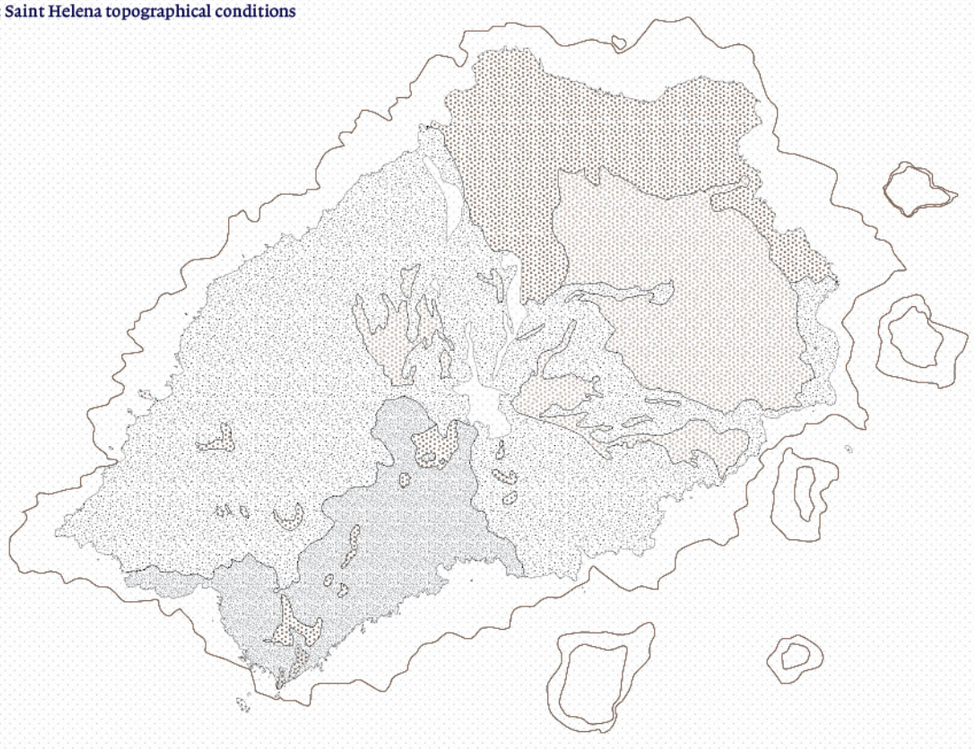
The isolation of St. Helena makes of it a major concentration of unique species. However, the arrival of human interaction introduced alien species, especially centered on soil and agriculture exploitation.
Along the topography and the weather, the landscape can be delimited in 3 aesthetics.

A stony, barren coastal area, land of the cactus and bushes, extending equally around the island on 2km. It then creates a semi desert belt, only stripped by a few grassy valleys and slopes of 1.5km wide.
Then, the latter envelops a central core, about 5km circle shape, stretching from the North East to the South (Diag. 6).

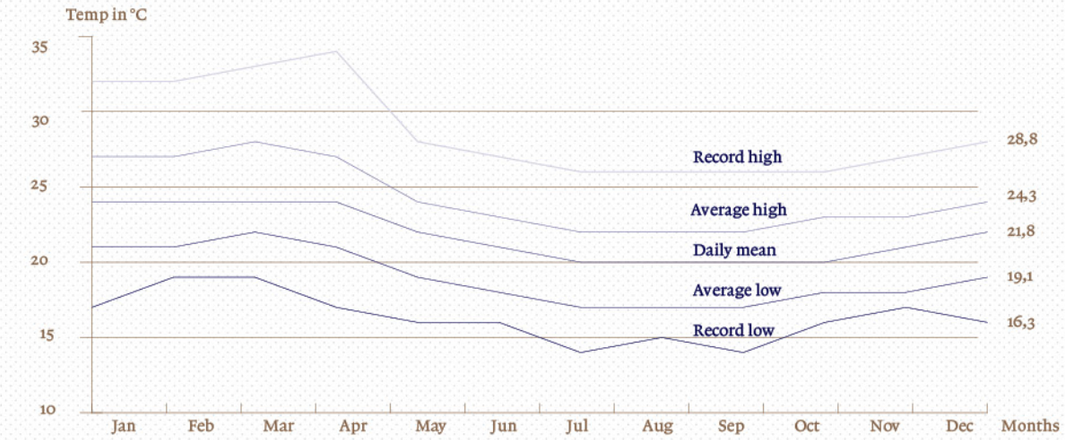
Fig. 6 : Peaks and vegetation cover in the island's core Paul Tyson, Copyright, St Helena Tourism, 2014.

Fig. 7 : Radical landscape of red cliffs. Photograph by Maxime Lemaillot, 2013

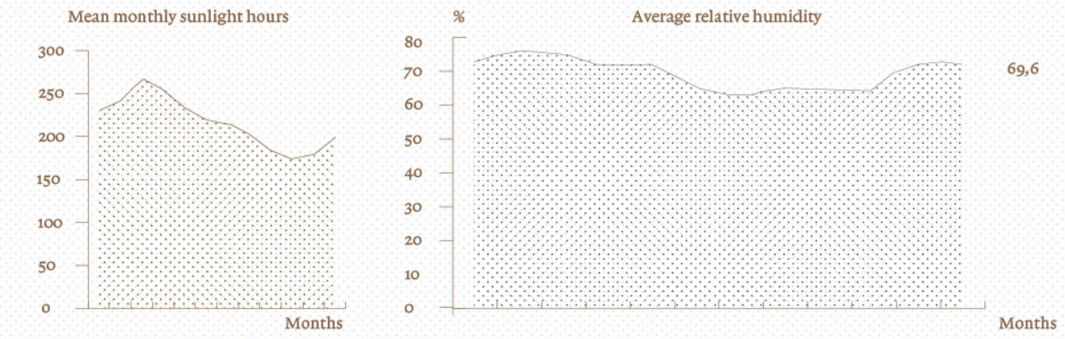
Diag. 4 : Saint Helena topographical conditions



Diag. 5 : Saint Helena geological conditions

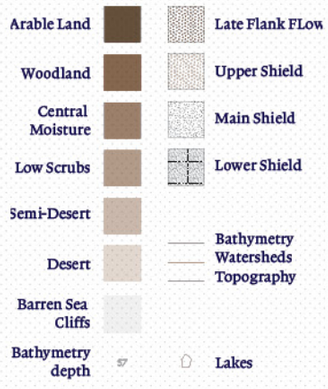


Tab. 1 : Saint Helena temperature variations.



Tab. 2 & Tab. 3 : Main seasonal weather changes in Saint Helena.

"Endemic species tend to live around the borders, alternating between a semi-desertic landscape and an alien species forest cover."



Kendle A. D. and Rose J. E., *The Role of Native and Alien Species in the Recovery from Desertification of St. Helena Island,* 2001

Chukar partridge
(Alectoris chukar)

Sanderling
(Calidris alba)

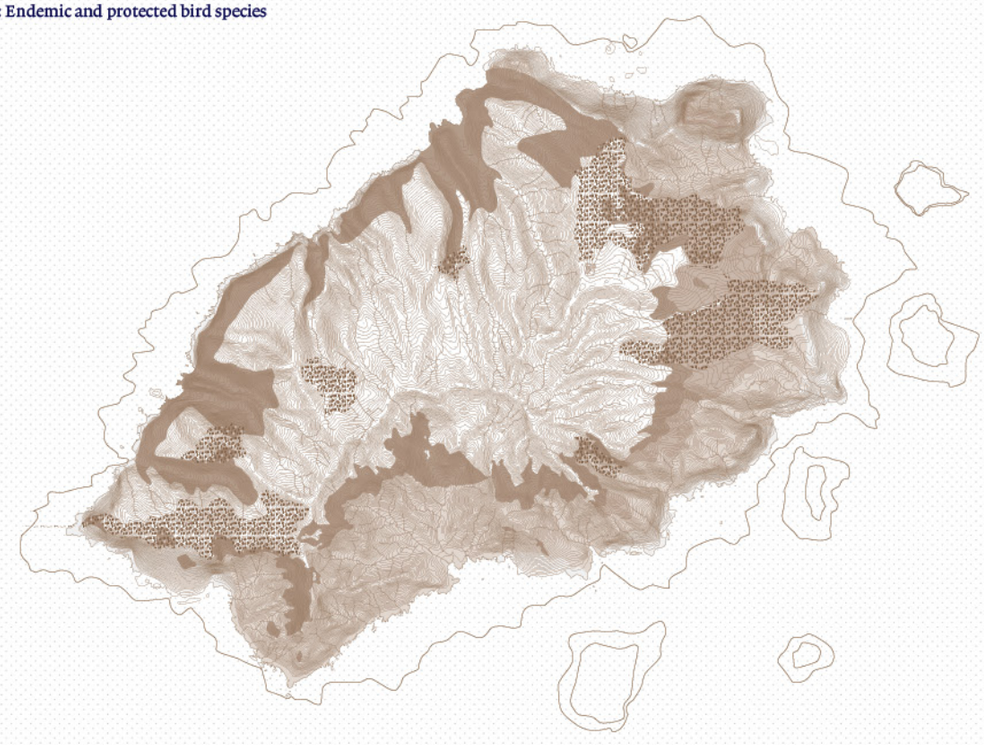
Black billed
(Cuckoo Coccyzus erythropthalmus)

Saint Helena Plover
(Charadrius sanctaehelenae)

White Tern
(Gygis alba)

Moorhen Slimb
(Gallinula chloropus)

Fig. 8 : Endemic and protected bird species



Diag. 6 : Saint Helena National Conservation Areas (NCA).

Fig. 9 : Jamestown enclosed landscape, Tricia Hayne Copyright, 2015.

Fig. 10 : Ladder Hill between Jamestown and Half Tree Hollow, Austin Andrews, Frontier Empire I: Saint Helena, 2014.

Fig. 11 : *RMS in the James Bay,* Ed Thorpe, Saint Helena investors, 2012.

Extreme topographical variations in Jamestown area alternates between spread and dense areas.

SUPPLY STOP

VALLEYS

In 1502, the Portuguese sailors found the island to have an abundance of trees and fresh water. However, regarding its location and its limited territory, they didn't established first a colony in opposite to British Empire, but considered the island mainly as a re-victualing base. They imported livestock, fruit trees, and vegetables in order to set the base for the settlement of a supply stop, in favor of the winds and currents. Except a few buildings as a chapel and one or two houses, the establishment was not permanent.

As a result to this transit activity and the necessary proximity to the wider ocean, the stretched valleys, enclosed by slopes, and eroded volcanic stone, became the main support of settlement of what is today Jamestown. (Fig. 9)

Indeed, Jamestown is built on igneous rock in a small enclave, sandwiched between the steep cliffs that form James Valley. The cliffs are unsuitable for building, so the habitation are limited to the valley floor and thus is rather long, thin and densely populated, with tightly knit, long and winding streets. Shrubs and trees decorate some of the street corners.

The surrounding terrain is rough and steep, and rockfalls are an occurrence and in the past this damaged buildings and caused loss of lives, though extensive netting in recent years has almost eliminated any risk. Regarding this specific location, the establishment in the multiple locations are commonly divided into Lower and Upper parts, depending on the distance to the coastline.

The coast then becomes the main resources, the first trigger for development. The inhabitants are mostly spread along the historic supply corridors, and limited urbanized areas. However, limits of the different places around the island are not clear, no precise boundaries between the entities exist. We call it landscape differentiation.

HILLS

Saint Helena is such a small, lonely rock in the middle of the South Atlantic that you expect it to form a single community. While for many purposes it does form one community, there are still differences on the island.
Indeed, in parallel to the narrowness of the valleys, settlements emerges as another primary gesture. The hills surrounded contain the traces of the environment appropriation, where roads and paths are carved in the stone. In the northern slope, the horizontal line of the road to Rupert's Bay stretched until the end of the area, while on the southern side, the famous Jacob's Ladder cut vertically the cliff from the bottom to the open landscape of Half Tree Hollow. (Fig. 10)

The act of carving directly into the slope shows a desire from the settlement to expand its territory and to create new opportunities in the use of the place.

As many societies do, the modification of the landscape morphology support the subsistence of communities. And in response to the lack of land at the bottom of the hill, the plateau was used.

Half Tree Hollow area was ideal to meet the demand for land needed, for the building of new homes. It already had water and electricity installed for military use, so it was only necessary to make roads and extend it toward the rest of the territory.

It's close to the quarry (across the valley at Donkey Plain), providing ready access to building materials, and Jamestown, where most people work and socialize, was easily accessible. The spread of the settlement is then driven by primary logics of land use and accesses to resources.

The dichotomy between the two landscape aesthetics shows a persistence toward the coastline. The latter lies as main resource, as trigger of the development. It supports the expression of the community as landing port and supply station. (Fig. 11)

TOWN AND COUNTRY

The radical variations of natural conditions in Saint Helena produce a multitudes of spatial expressions. However, two patterns emerge : the town and the rest, the country.

Far from taking a simplistic approach, the most basic level of area differentiation on the island is the division between town and country. Jamestown, including Ladder Hill, is town and the rest of the island is country.

The enclosure of Jamestown create a condensed fragment of history while Half Tree Hollow is commonly observed and described as a Jamestown outskirts, an in between town and country. The spread of houses makes the difference even more ambiguous as the settlement stretch toward Alarm Forest, Longwood and much further Blue Hill, the central plains. (Fig. 12)

Administrative area	Area (Km²)	Population 1998	Population 2008	Population / Km²
Blue Hill	36,5	177	153	4,2
Longwood	33,4	960	715	21,4
Sandy Bay	15,3	254	205	13,4
Levelwood	14,0	376	316	22,6
Saint Paul	11,4	893	795	69,7
Alarm Forest	5,9	289	276	46,8
Jamestown	3,6	864	714	198,3
Half Tree Hollow	1,6	1126	901	563,1

Tab. 4 : Population repartition in districts

The inequality in the settlement repartition reveals many trends and interaction within the territory.

Fig. 12 : View from the Upper Alarm Forest, Austin Andrews, Frontier Empire I: Saint Helena, 2014.

Fig. 13 : Blue Hill isolated house. Shutterstock, 2012.

Not all the districts are relevant as observation of the expression of the Saint Helena community. However, one of the intriguing area lies in Blue Hill, as the largest area within the island, covering 36,5% of the territory for only a bit more than 3% of the population. The density within the main natural accesses to the territory contrast with this landscape. (Table. 4)

Apart from a few settlements and isolated cottages, Blue Hill is empty - of people at least. It has been suggested that the population of farm animals exceeds the amount of inhabitants as agriculture oriented like Falkland islands.

Indeed, in contrast to settlements based on the development of agriculture as main resource, the empty areas are considered by Saints as marginal places, where people are designated by their accent. In a similar way, Sandy Bay lies at the most eroded part of the island, enclosed, with a difficult access regarding many services, even with water services and electricity supply (Fig. 13). These two districts, along with Levelwood, are regarded by town people as empty landscapes. These are the remotest districts, and also the districts where people can be most quickly recognized through the multiple accents. We easily observe the centrality of Jamestown in the making of the territory and its organization. (Diag. 12)

INTERIORITY

The superposition of history and primary conditions of the site creates a paradox in the territory as most of the issues in towns are generated by density while most of the island remains uninhabited. The North West of the territory illustrates well the specificity of this territory.

As supply stop, the trade, primary activity of the inhabitants reinforced the linearity of the settlements. The is being confronted to another logic, a culture of the place and its expression through construction.

We focus on the finer scale of the construction, as it express both a culture aesthetic and the influence of the specific site on its expression.

Diag. 7 : Urban and natural landscape dichotomies

Fig. 14 : Hospital of the Liberated Slaves Depot in Rupert's Bay, John Grimshaw, March 2010.

Fig. 15 : Upper Napoleon Street from Alarm Forest, Austin Andrews, Frontier Empire I: Saint Helena, 2014.

Fig. 16 : Church in Longwood
Photographs by Maxime Lemaillot, 2013

Fig. 17 : Chapel School & Long House
Photographs by Maxime Lemaillot, 2013.

SLOPE & STONE

CULTURE

At the current time, Jamestown, as first settlement on the island, still contains major traces of its historical period. Strong of an the accelerated colonization in the late of the 18th and 19th centuries, the Saints themselves are the people from different cultural background.
As result, the town is characterized by a piecemeal development over a period of successive developments with little in the way of overall strategic town planning.

It develops as an array of mixed uses alongside one another due to necessity with Jamestown being not only the commercial hub, but also the main gate for goods transports and users to the island. (Fig. 14).

AGGREGATES

In character, the town seem to embody a Georgian architecture style, although much of this younger due to rebuilding, and surrounding influences.

The urban spread follows here the economic development of the city as the growth followed periods of prosperity. The result led to the buildings being re-used and re-modeled for differing purposes over the years in a narrow valley with one side an entrance to the land and on another side, the wide ocean. From the wharf to upper part of the town, they are sequences of underused building typologies from the 18th and 20th. (Fig. 15)

STONE

One of the event that shaped the aesthetic of Saint Helena settlements lies in the accidental introduction of white ants in 1840, a type of termite.

The ants destroyed all the wooden pieces during years through the island. By doing so, it provoked the loss of timber carpentries, floors, and windows. Only a few hardwood pieces, openings, stairs and more rarely, windows, have survived. This event started the propagation of the use of metal roofs, as widely spread reminder of this era, commonly used by any types of constructions.

Following this disaster, the stone masonry of the constructions was usually built with stones directly found or extracted from the surroundings of the building site and built with earth mortar.
From Lemon Valley to Longwood, we can observe the same emergence of architecture, taking the color of the surrounding volcanic stone, constructively or simply in the exterior appearance (Fig. 16 : Church in Longwood). The lack and access to materials being one of the major factor in the case of isolated territories.

Indeed, many are constructed of grey, red stone rubbles or stone blocks. Others are mainly built in concrete block structures while using other materials founded on the fortifications. The longitudinal buildings, mainly divided between large stone facade oriented toward the street and an open space in the rear of the plot, constitute an ambiguous catalog of typologies.

However, the heavily painting of most of the buildings sometimes hide the construction, and the variations are then difficult to recognize and collect. As an influence from the Georgian style Architecture, the buildings become part of the atmosphere in the colorful Jamestown.

SLOPE

Starting from the central areas of Jamestown, and stretching against the volcanic stone slope, the buildings are cut by the inclined plane. The rear open space of the warehouses and residential buildings are then used to absorb the morphology and the shape of the slope, showing a continuity on the side of the public space. (Fig. 17)

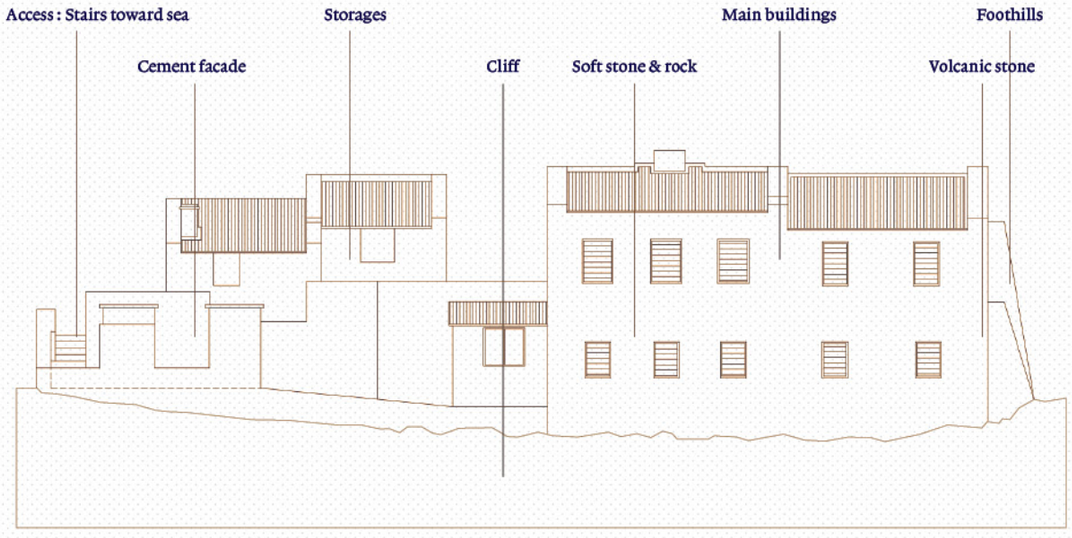
Following the same logic, the buildings of the Munden's battery are a good example of this specific vernacular. The two storey house, guardhouse during the late 19th century, is integrated in the cliff, facing the ocean, built as an emergence of the topography. A few openings are dug into the partly white painted stone wall, in a similar way to the other Saints buildings.

The materials are directly extracted from the site in order to create few rear gardens and direct carved paths from Jamestown to the site. Thus, it creates small terraces, and storages to support the main buildings. The topography plays here a major role in the perception of the territory as well as it's appropriation.

Half Hollow Tree settlement, through its integration in the slope of Ladder Hill is another emergence of vernacular expression despite the homogeneity in the residential architecture. (Diag. 9)

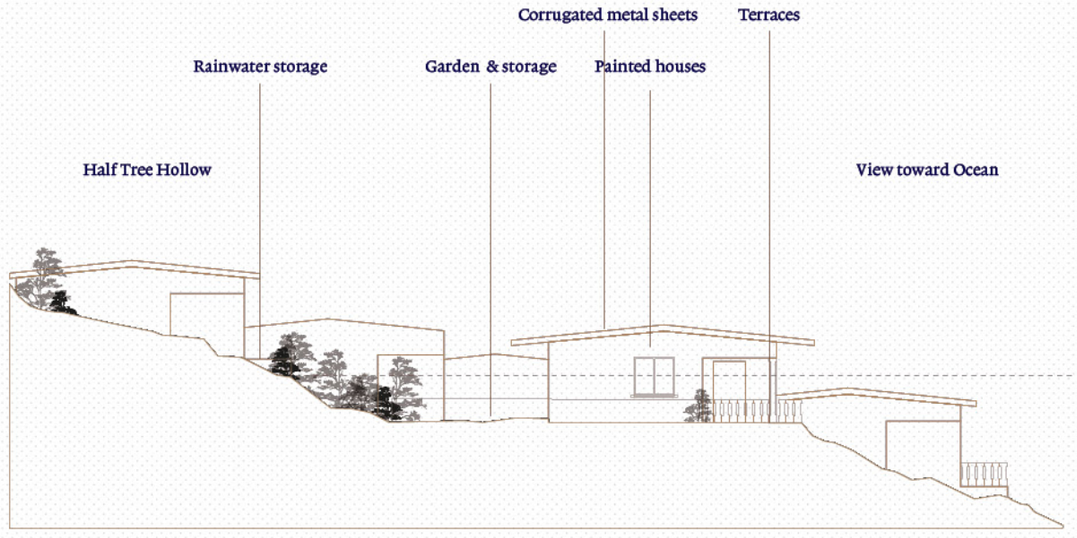
Indeed, in a more subtle way, the buildings use recurrent patterns in the adaptation to the slope. From the rear garden and storage to the orientation of the openings toward the ocean, a mechanism of landscape appropriation emerges from the site.

Along the aesthetic of the territory, the feeling of a curious local vernacular style emerges in a subversive and subtle way, unconscious series of small gestures toward the landscape and the surrounding conditions.



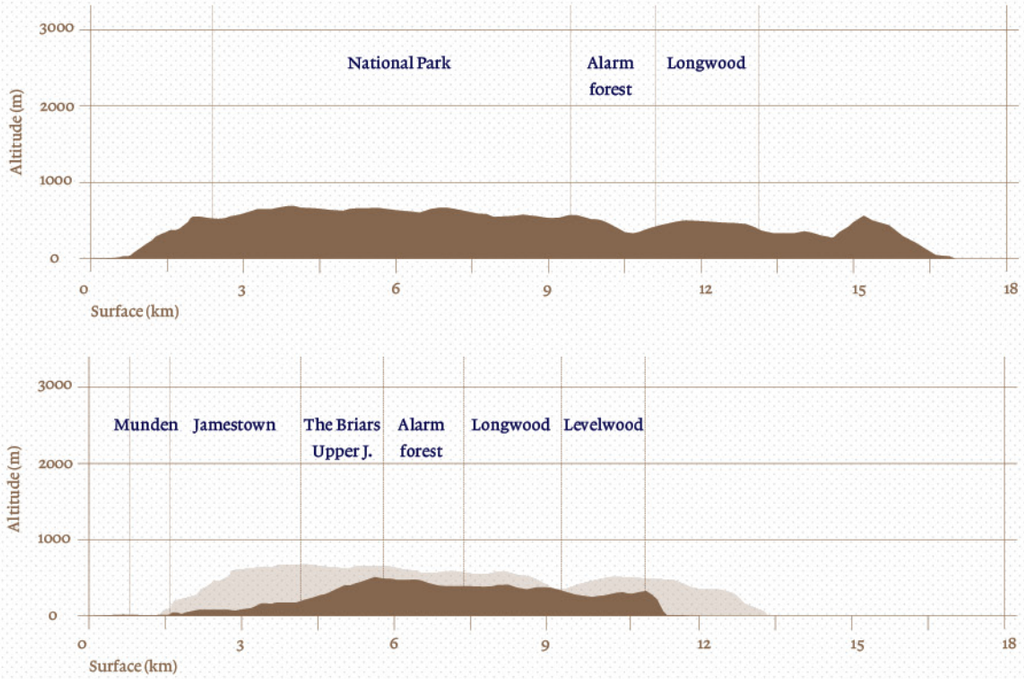
Diag. 8 : Terraces and stone architecture.

Fig. 18 : Munden's Battery and the Bahrain prison Stuart Planner, *Jamestown, a vision for 2020 brochure*, 2010.

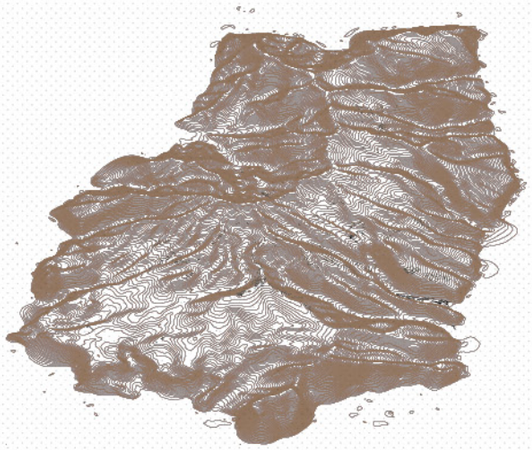


Diag. 9 : Half Tree Hollow houses recurrent pattern

Fig. 19 : Half Tree Hollow houses Paul Tyson Photography, 2014.



Diag. 10 : Sections North-East / South-West to North West / South East.



Diag. 11 : Topographical variations in Saint Helen settlements

Arable Land
Woodland
Central Moisture
Low Scrubs
Semi-Desert
Desert
Barren Sea Cliffs
Bathymetry depth
57
Late Flank FLow
Upper Shield
Main Shield
Lower Shield
Bathymetry
Watersheds
Topography
Lakes

Saint Helena Map - *Vernacular expressions*
1/110'000

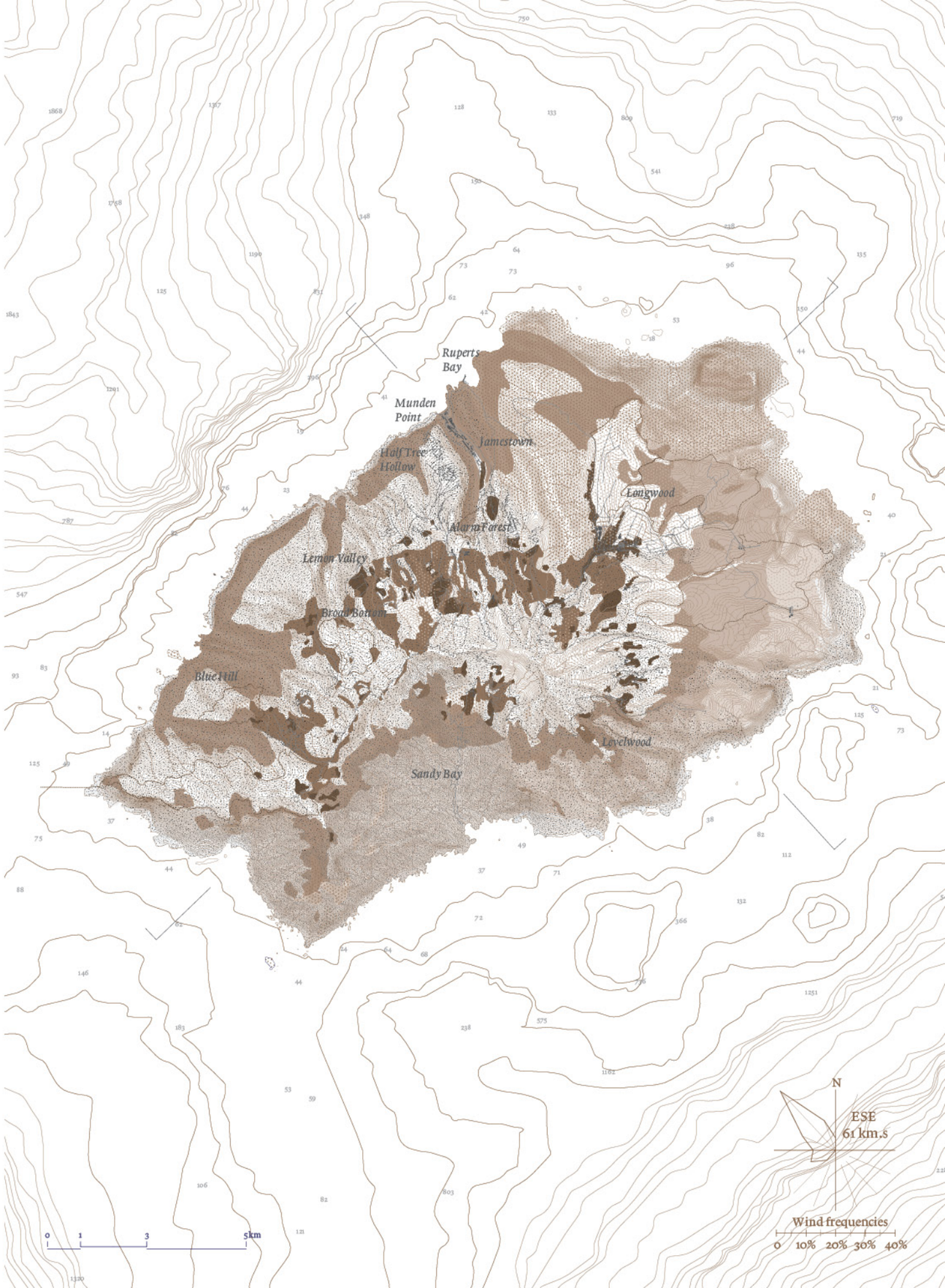


Fig. 19 : John Tonks, Empire, 2003 Jamestown photographed from Ladder Hill

2.4 - Ascension island

LAVA FIELDS

GEOLOGY

At the west of the mid South Atlantic Ocean ridge that separates South America's tectonic plate from Africa's, it is the top of a volcano which rises steeply from abyssal floor to reach, after kilometers below the surface of the ocean, the altitude of 859m. An other of the emergences, specific conditions of oceanic islands.

The volcano made it above that surface only a million or so years ago, since when the island has grown to about 100 square kilometers. The island itself emerges from Atlantic, not as a regular volcanic cone as Tristan da Cunha, but broken, as "Broken Teeth" site suggests, barren, and desert.

On closer approach, Ascension island is mostly composed of porous rock and calcined areas, and hot cones produce mist and fume directly from the mountains destroying all vegetation. (Diag. 13)

TOPOGRAPHY

Following long period of erosion and wind effects on the volcano, the island seems like a lava field. From ashore, coming closer to the coast, nothing is to be seen except the infinity of volcanic cones dominated by a green mountain.

The lava that flowed from the crater and its satellites dominates the whole landscape of the island and determines its sharp coastline. These successive flows transformed the mountain into a slow slope, completely exposed to the climate and the . Only the center of the crater a the top brings a protection.

However, around its coast, the jagged cliffs are broken, deserts, and intersected here and there by sandy bays and coves, as the main ones as Clarence Bay or Comfortless Cove. Indeed, one can easily compare Ascension's landscape to the Mars' one. Despite the surrounding ocean, most of the island is a desert. (Fig. 21)

Much further, a few islands, rocks resisting to the winds and the surrounding climate, as Bosunbird island or Boatswain island, lie a few meters far from the coastline. It host the swirling mass of seabirds and green turtles, primitive primary resources of Ascension Island. (Fig. 23 & Diag. 14)

CLIMATE

Ascension island lies at the south of equator, in the path of the South-East trade winds which help to produce temperatures that, in tropical terms, are pleasantly tolerable all year. (Tab. 5)

Indeed, the climate in Ascension island is managed by the south-east winds gently brushing the surface of the land. The winds aren't very strong and blow in direction of North West exposing the south cost in an ever more erosion.

The temperature is high and constant, oscillating between an average of 23°C in October to 33°C in the hot summers in March. The weather and the temperature are constant, hot.

However, a noticeable difference appear if we look closer at the territory, in the surrounding of the so-called "Green mountain". The temperatures become more freezing and humid as one climb to the top, reducing the temperature from 4 to 6°C with an rise of rainfall ratio. (Tab. 6 & Tab. 7)

Despite uncertainty about long-term rainfall trends, today's vegetation above 600 m clearly prevents direct run-off of moisture on wet days and keeps the humidity in its tropical vegetation. Then, it redirect the water flow to form the Dew Pond, natural volcanic hole in the topography.

VEGETATION

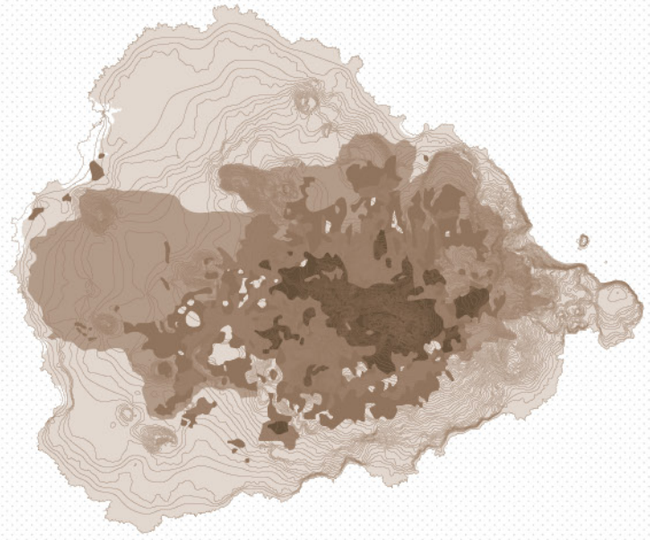
Indeed, For over three hundred years after its discovery in 1501, Ascension Island, in the middle of the Atlantic Ocean, remained with very little greenery. But in the nineteenth century, people settled on this remote spot and to make grow a cloud forest, as Darwin and Hooker during their journey in Atlantic proposed. (Fig. 22)

The modern flora of Green Mountain may be separated into three zones. A desert zone below 330 m has small thorny bushes and mostly in-between rock vegetation spreading.

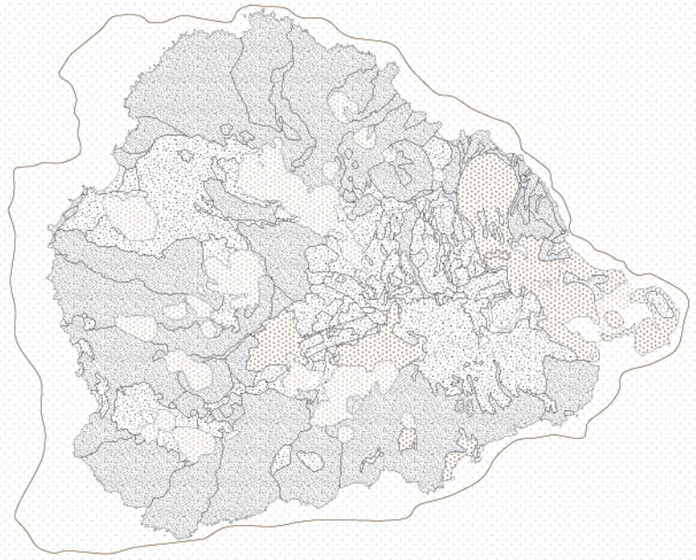
After, from 330-630 m, a coverage of grasses and trees to reach 660 m with its mist zone completely green. It includes areas of dense trees and bushes, dispersed on top of some humid slopes. (Diag. 12)

Fig. 21 : Lava and ash formations along English Bay Road Simon Norfolk, *Ascension Island : The Panopticon*

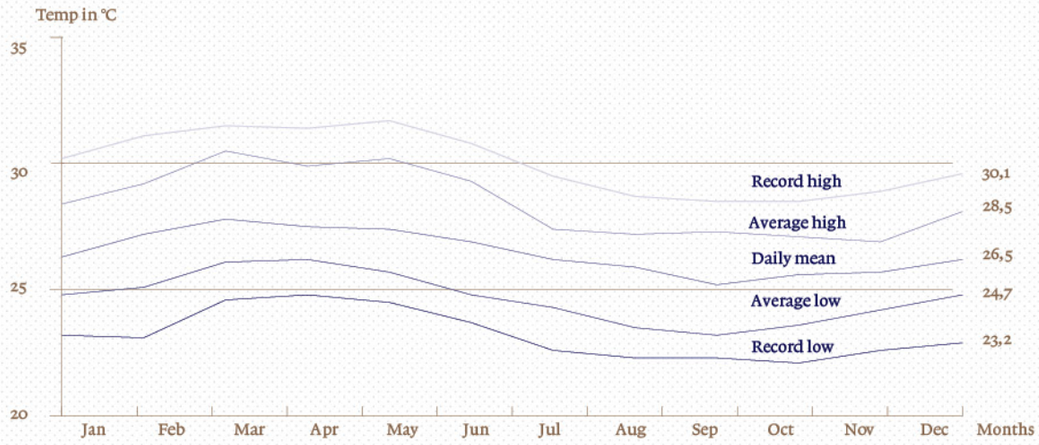
Fig. 22 : Mist shrouded trees along the path to Green Mountain Simon Norfolk, *Ascension Island : The Panopticon*



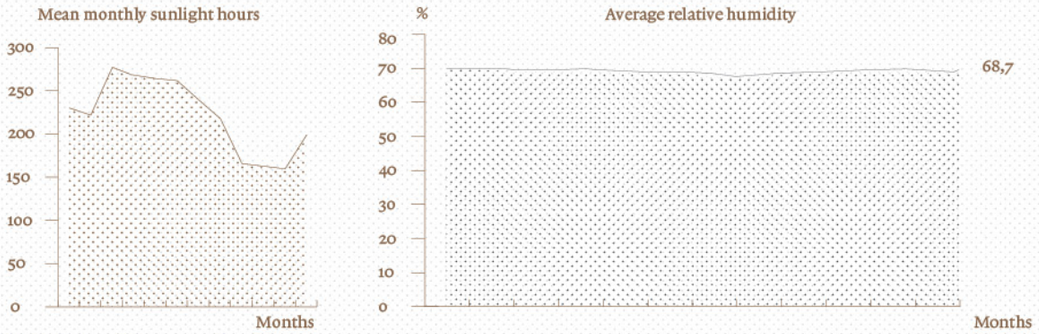
Diag. 12 : Ascension island topographical conditions



Diag. 13 : Ascension island geological conditions



Tab. 5 : Ascension island temperature variations.



Tab. 6 & Tab. 7 : Main seasonal weather changes

"Ascension expanded its land based protected areas to 20% of the islands total area, including important seabird and turtle nesting sites."

Program BEST III - Biodiversity and Ecosystem Services in Territories of European Overseas in The South Atlantic Hub paper.

Masked Booby
(Sula dactylatra)

Ascension Frigatebird
(Fregatidae)

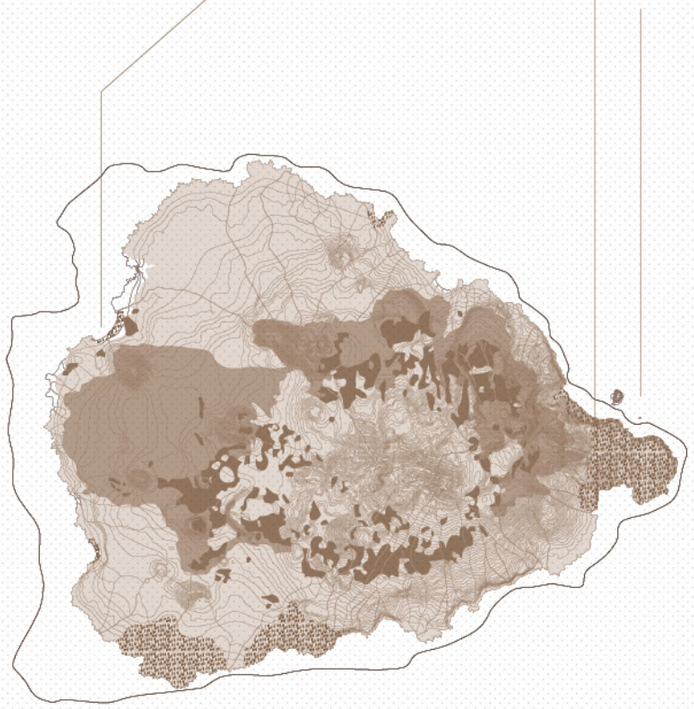
Whimbrel
(Numenius phaeopus)

Red Foot Booby
(Sula sula)

Green Sea Turtles
(Chelonia mydas)

Black Noddy
(Anous minutus)

Fig. 23 : Protected species



Diag. 14 : Ascension island National Protected Areas (ASC)

Fig. 24 : John Tonks, Empire, Breakneck Valley, Green Mountain

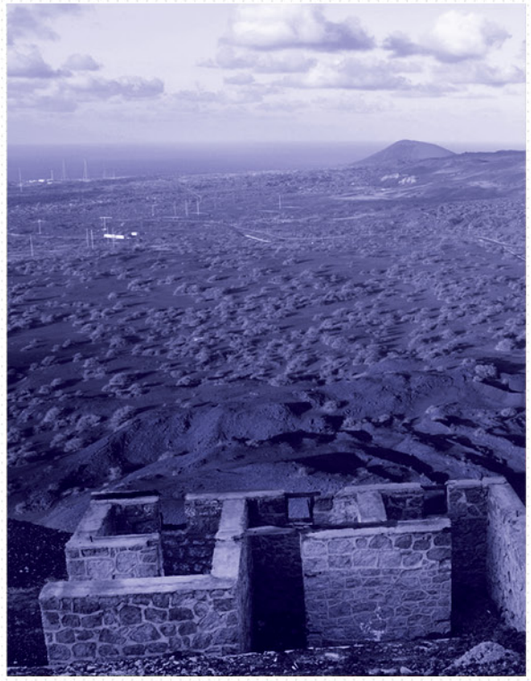


Fig. 25 : Austin Andrews, Frontier Empire II: Ascension Island
Sunset crawls across the veld east of Georgetown.

Fig. 26 : John Tonks, Empire, The First Garrison, Green Mountain

Fig. 27 : Path between Dampier's Drip water source and Two Boats village higher than the coast, at the bottom of the volcano.

STONE FRIGATE

SUBSISTENCE

The settlement as we know now was developed over the 19th and 20th century. The location of the villages highlight the importance of the coastline as major resources provider through the vessels and ships calling. Indeed, the access from the coast seem essential as the sailors and the garrison where based here on the solely purpose of surveillance of the surrounding ocean.
The British Empire developed then the island as Stone Frigate, nickname for a naval establishment on land.

The condition of isolation of the island as we saw earlier create communities surviving on natural resources. Then, the community living was organized along two major entities as base for subsistence. The rugged and resourceful coast on one side and the volcanic cone, through the search of water. (Fig. 24)
Then, the settlement, through the fortifications in case of a potential rescue of Napoleon Bonaparte in Saint Helena spread in between the two geological entities on the territory.

COASTLINE

One major characteristic in the location of Georgetown settlement is the proximity to egg-laying beaches in many location.
Because of it, very early in the establishment of the garrison, most of the vessels calling at Ascension were for turtle often turn 50 in a night and may be found in great abundance 8 months out of 12, say June, July, August and September excepted, when the season is too cold.
As storage in order to manage this main resource, the creation of the actual Turtle Pond, not far from the first barracks. Actually, it is now a trace of first reaction to environment, through exploitation. The subsistence set up the starting point of what would become Georgetown. In the same logic, birds and fishing activities are still the only main local resources allowing the life if we except all the current importation of goods.

Beyond of the direct dialogue between these different sites, the port was and remains the support of the Ascension Island' community. It reminds in some way Saint Helena as well as most of the oceanic island where the main inhabited area and built environment is located on the coast. From Clarence Bay to Wideawake Fairs as the topography in very flat, the access to the whole territory remains homogeneous, without particularly dense nor over exploited places.

However, the construction of fortifications around the hills, as dominant positions, creates a few scattered districts all around the island like the two villages of Cat Hill and Travelers Hill. In these case, mostly on top of the hill, the fortifications allows the view of the surrounding while at the bottom lies the village. Its development is usually organized without even a view to the ocean as in Traveler's Hill, facing the mountain and the multiples volcanic cones. (Fig. 25)

The landscape here plays an ambiguous role in the appropriation of places, and in the previously status of the coast. Indeed, in this area where nothing but the ocean is seen until the horizon, the visual support of topography usually bring a base, an entity to start with. (Tab. 8 & Diag. 15)
Especially in an empty and very desolated landscape, the need to create limits seems essential.

As multiples villages, scattered buildings, actual and old constructions, the Ascension Island urban development if we can say so, follows the geomorphological conditions of the place. The hills become as many anchorage for settlements, while the green mountain create an isolated environment, marginal from inhabited areas. Through a punctual approach of the land, we can observe the repartition of the population in between the coast and the artificial green mountain, strangely stopped by the slopes, as if the more comfortable natural conditions of the old volcano crater were to fear.

INLAND

The second trend in the appropriation mechanisms lies in the intense search for water during the 19th century. A traditional story about this search tells that Dampier, a sailor wrecked on the island, after surviving, found a little pond, at middle height from the main central cone slope. (Fig. 26)

Indeed, along stone water tanks built for the only purpose to transport water, a rough track guides to Dampier's ravine and further to the Breakneck Valley and its water catchment area. Strangely, even before the complete construction of Georgetown, the territory was cluttered of water tanks. (Fig. 27)
The ever lasting path from the water location to the coast created then the main road of the island. However, the climate made this path very difficult to use as the sun strongly hit this area.

As a reaction from the inhabitants, the path through Middleton's ridge to Georgetown, not far from the current "Chapel of Rest", were erected a resting place for those trying the ascension. The original two boats shelters became then the village of the same name, using the favorable climate to remain.

Administrative area	Area (Km²)	Population 1998	Population 2008	Population / Km²
Cat Hill	3	248	210	70
Georgetown	4,7	456	450	95,7
The Residency	0,2	8	4	20
Traveller's Hill	3,2	302	170	53,1
Two Boats	1,6	100	110	73,5
Green Mountain	11,4	2	4	0,4
Others areas	73,9	6	0	0
	98	1122	948	9,6

Tab. 8 : Population repartition in districts

Fig. 28 : Brian Mackay, The road to Two Boats and Green Mountain

Fig. 29 : Jason Larkin, Ascension : An useless island

Following the track from plains to the higher parts, the paths changes as the topography becomes steeper. Where linear roads start in the plains, multiples paths and tunnels curved directly in the stone appear in the mountain (Fig. 28).

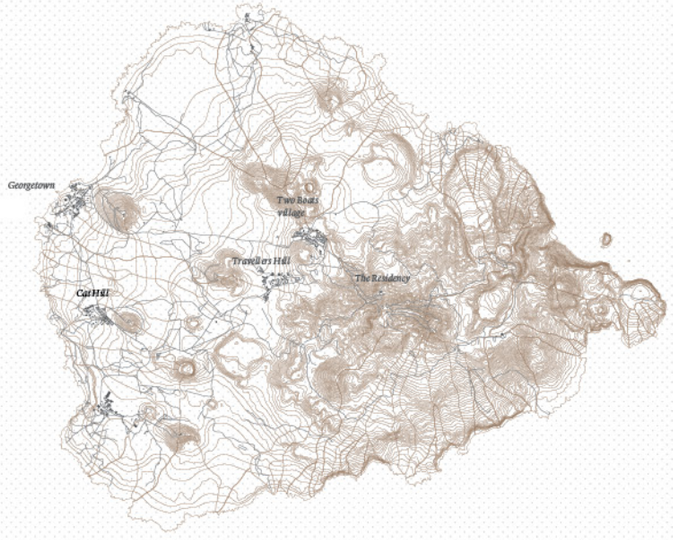
The village of Red Lion comes at the end of the path, as limit to a wilder area, the topography becomes steeper. The area, despite the garden plots all around, where the greenhouses are, never been enough to sustain the whole island.
One of the most remarkable landscape remains the water catchment area, truly paved hill, for the only purpose to use the site and the surrounding weather to provide water. An architecture emerge scattered between the tropical forest with stone buildings, carved inhabited caves of the 19th century and current underexploited hospital. Indeed, this area describes well the evolution of concern in the territory, but also the availability of materials.

The use of the topography shifts clearly from the logic of excavation to the construction and management of a landscape. Here again, it isn't a clear evolution from one style to another but the reaction and the use of the stone is essential to understand the aesthetic of this isolated harsh environment.
In between vernacular reaction of settlers, subtle re use of the buildings and areas as an engraved stone of Red Lion settlement building tells us "this wall was built in 1963 with stone taken from the ruins of the old commandants house Georgetown, the first house ever to be built on ascension in AD 1818".

OPENNESS

The repartition of the population on Ascension island follows multiples aesthetics. We clearly can identify a pragmatic vernacular, especially in the green mountain, despite the social and community expressions remains between the three settlement of the island. One facing the ocean in search of supply, another at the foot of the mountain, essential path for resources and the other, as defensive and using topography as fortifications.

By doing so, these isolated pieces of the landscape tend to re create limits, visual bearings where there are no clear boundaries. (Fig. 29)



Diag. 15 : Districts repartitions along Ascension island, mostly in the West of the Volcano, the flat and desert area.

Fig. 30 : Old fortifications near Cat Hill

Fig. 31 : Dampier's Drip water Tank

Fig. 32 : Plaque at Green Mountain

Fig. 33 : Health Services, Hospital GT, Georgetown

WATER & STONE

RED STONE

The rough cave houses and corridors are still visible at Dampier's Drip, that were dug at this time. The excavation of the mountain, in a similar way than the caves close to the coast, serving as oceanic letterbox for sailors, were used both during the temporary and durable colonization. (Fig. 30)

The two logic highlighted in the previous paragraph described different attitudes toward the landscape. However, in a finer observation, we can define a certain continuity in the settlement aesthetic. A strange vernacular shared by a few buildings.

The first constructions on Ascension island where series of water tank as the transportation wasn't very the most efficient way to bring water. By doing so, the still visible first large tank is completed in Dampier's in 1829. It use the direct main available materials. Half black and red stones with lime joint, it rises along the fortifications, the "canteen" and the 19th century building as red colored emergences on this desert island. (Fig. 31 & Fig.32)

Following the same appearance, the stone barracks were built as the settlement grew, while Georgetown started its expansion. The Hospital and the present Exiles Club and many small officers cottages were built at this time to replace the dilapidated wood and canvas structures. (Fig. 33)
The Exiles club was then single storied stone building, the upper floor and the clock tower were added later. Palmer's cottage and small farms also begun following the increase of activity.

Moreover, a site specific military architecture, following its pragmatic districts reinforcement, used materials from all other the islands. Without any records of quarries locations and through observation of the buildings, we consider the plurality of materials, from the wood to the sand, as aggregate, to the stone rubbles.

CONFRONTATION

Many current buildings have an evident composite appearance. Half built from the traditional red stone from Ascension Island, half embodiment of the actual standards bungalows, the settlement is a vestige of the passages of inhabitants.

The Hospital in Georgetown, along many other constructions seem to be an in between, ruins tracing the evolution of materials, as the corrugated metal roofs also present on the two other islands, Saint Helena and Tristan da Cunha.

Under the same lens, we observe similarities in the materials used in the Bonneta Cemetery, located at Comfortless Cove in North of Georgetown. (Fig. 34)

Certainly, the simple gravestones hold the same appearance than the Solomon's shop and storage, but also on the main stone, delimitation of the paths in Georgetown. The white painting, superimposed to the stone rubbles bring an easthetic of imperfect but clean construction. Actually, most of the currently used buildings are heavily painted from pale colors and white, sometimes making the observations of recurrences difficult. (Fig. 35)

However, an atmosphere emerges from the succession and repetition of gesture, constructive aspects or pure facade similarity. Then, another recurrent element comes in the range of our analysis, which is the residential construction situated all over the island, in Cat Hill as well as in Georgetown and Two Boats village.

ENCLOSURE

The development of residential areas are the main basis for settlements. In the very monotonous and rugged landscape of Ascension island, the exposition to natural elements, such as the high temperature in an undeniable fact. Long overhang roof are then the primary protection in the same way of the settlers erecting the two boats to provide shade. (Fig. 36)

When Bernard Rudowsky says in *Architecture without architects*, "Garden walls, hedges and fences are looked upon with by people who are allergic to privacy", he tries to identify phenomenon.

For this reason, in the case of these houses, the screens are conceived as limits, separations from the public space or empty landscape. In order to achieve the enclosure, the inhabitants of this dry landscape create fences, integrate vines and develop an interiority in an architectural scale. (Fig. 37)

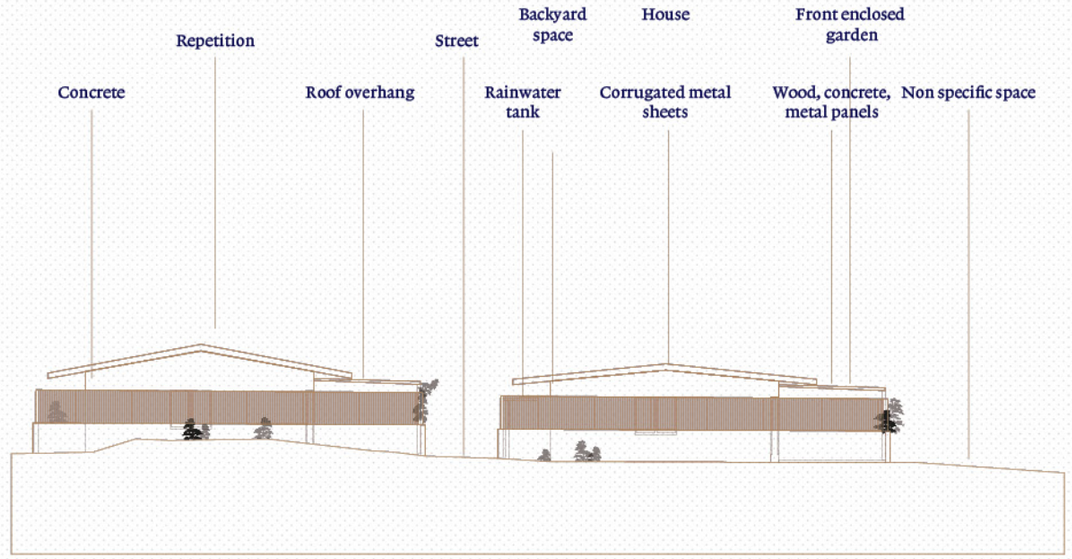
We can observe a clear repetition of this phenomena scattered on the territory. Starting from a single observation, this aesthetic of enclosure seem important in the constitution of islanders appropriation. (Diag.16)

The subsistence of the inhabitants comes with the confrontation to natural conditions as well as primary reactions, sometimes conscious but a few time as simple reflexes. As many cases of emergences from the specific site.

Fig. 34 : John Tonks, Empire, Bonetta Cemetery, Comfortless Cove

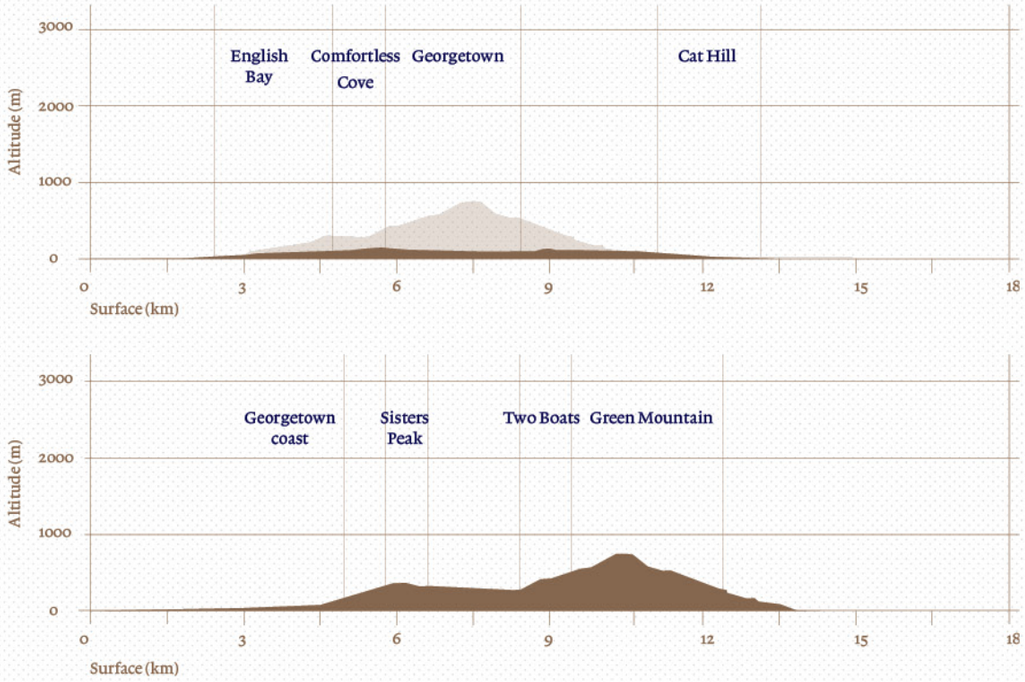
Fig. 35 : Solomon's Georgetown Shop

Fig. 36 : John Tonks, Empire, 2003 Georgetown fences & private enclosed garden

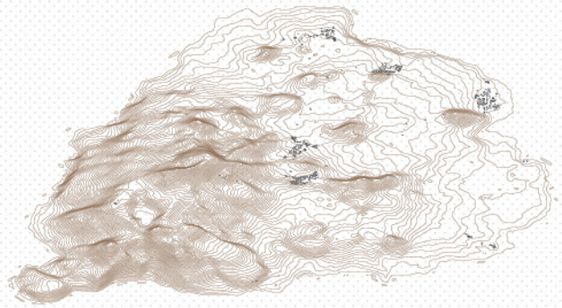


Diag. 16 : Isolated houses in the desert of Georgetown protected from shade and privacy with fences.

Fig. 37 : House and protecting vines



Diag. 17 : Sections North-East / South-West to North West / South East.



Cloud Forest
Grassland
Scrubs
Semi-Desert
Desert
Bathymetry
Bathymetry depth
Trachyte Flow
Pyroclastic Cone
Pyroclastic Deposits
Inter Lava Flow
Watersheds
Topography
Lakes

Diag. 18 : Topographical variations along the districts

Ascension Island Map - *Vernacular expressions*
1/110'000

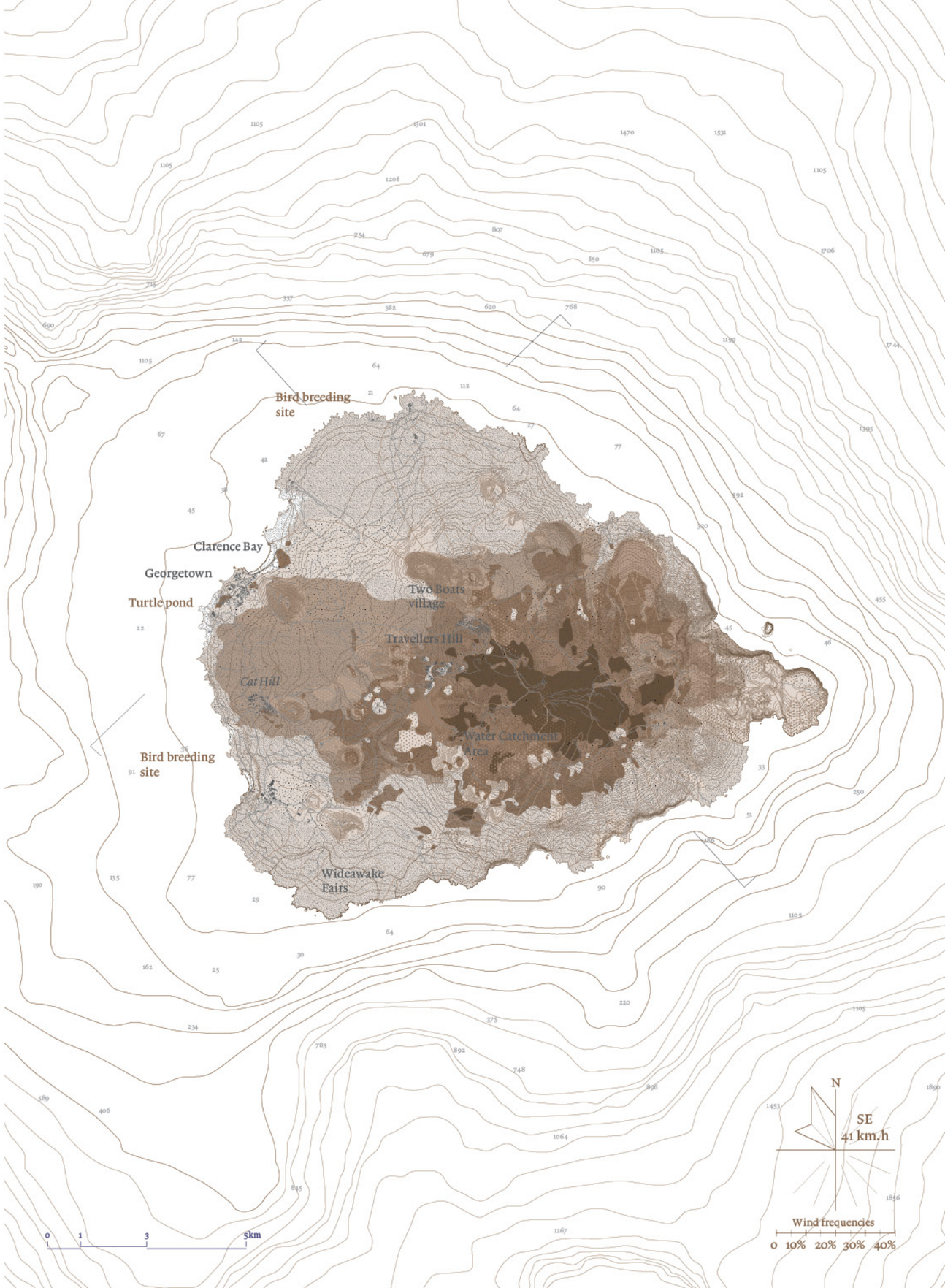


Fig. 38 : John Tonks, Empire Sisters Peak, Broken Tooth Live Firing Area

2.5 - Tristan Da Cunha

VOLCANIC CONE

GEOLOGY

Tristan da Cunha is one of a group of three islands located in mid-Atlantic at South Africa and South America. The main island is essentially one huge volcanic cone, rising from the abyssal depths of the South Atlantic Ocean ridge. It rises to the height of 2062m above sea level, almost untouched surrounded by the massive cliffs for much of its 32km of coastline. (Fig. 39)

All four islands show evidence of recent volcanic activity such as effusive flows (Tristan), cinder cones (Tristan, Inaccessible and Gough) and trachytic flows (Nightingale). Moreover, we observe than in most of the cases, the flow is quite homogeneous, creating the same condition of the soil all around the source of the lava, except the recent cinder cones. Actually, none of the islands can be described as volcanically extincted. Small parasitic cones and cinder sediments, scattered on the slopes are the only singularity of the quasi homogeneous volcanic composition. (Diag. 20)

TOPOGRAPHY

Indeed, these 3 islands are all peaks of multiples volcanoes which differ in age, and therefore in erosional stage. Tristan da Cunha is the highest, largest and least degraded cone. Since the early years, it was a visual anchor for sailors and whalers. However, the island is linked by shallower water between them and Tristan, showing the same volcanic origin. (Diag. 21)

The flanks of the Queen Mary Peak are steeper as much as the erosion of the soil appear. Then, it become more and more inclined as "The Base", plateau in the South West of the island, lies around 600 and 1000m. The cliffs are vertical limits, veritable precipices cutting the topography in two parts. It creates a continuous steep ring around the volcano, half truncated just above the main flat area of the Settlement. Further to the North, the volcanic cone of the 1961 eruption overlook the village.

These narrow lowlands are mostly located in the North East with the development of the inhabited area, while the other two pieces of land are merely beaches in South of the island.
In between the two main topographical conditions, deep gulches dug through the years by the weather and the water lie as many strips and windy valley to the top.

CLIMATE

One of the main characteristics of these island climates is their oceanic climate. Being in the middle of the major South Atlantic Ocean weather pressures movements, both seasonal and diurnal temperature fluctuations are very little. (Table.9)
Tristan has a mean annual rainfall at sea level of 1676 mm, with rain on 250 days of the year. During summer, Tristan da Cunha is under the influence of the subtropical weather, and clouds gather at the top of the eroded crater while temperatures oscillate from 30°C and 2°C in cold winters. (Tab. 10 & Tab. 11) The storms are then fewer than in the cold season, despite being at the edge of the Roaring Forties winds, often carrying cyclonic storms and strong bursts of wind. (Fig. 40)

The used data are gathered at a sea level, where the settlement and the main tools are. However, as we observed in Saint Helena, the weather and temperatures changes are essential in the understanding of the islands landscape. Indeed, depending the location, Sandy Point in the East becomes much dryer due to its well sheltered location while the Base rainfall increases is more than the double than anywhere else. (N. M. Wace. 1976)

Then, we can observe 3 different patterns, depending here again of the altitude, but especially in this case, of the orientation. From the coastline to 600m remain an oceanic, humid and mostly constant weather. Above this level, where The Base plateau is, from 600m to 1200m, the wind get stronger and the snow lies intermittently during winter till the summit, eroded and desert land. (Diag. 22)

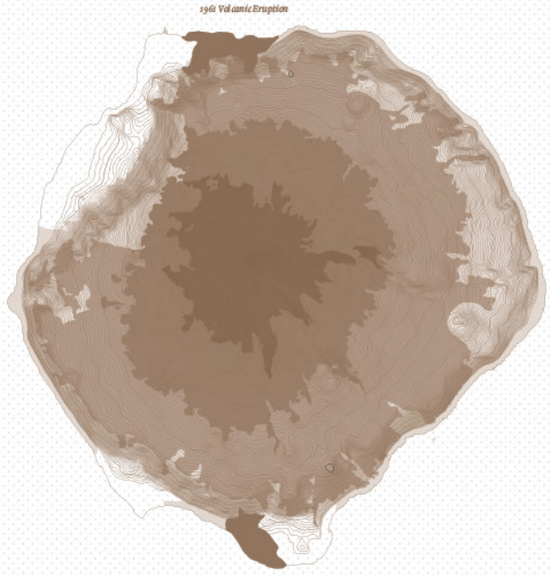
VEGETATION

In the same way than the vegetation is very specific to altitude and topography. Indeed, we can observe 4 types of vegetation, containing very specific endemic species. (Diag. 19)

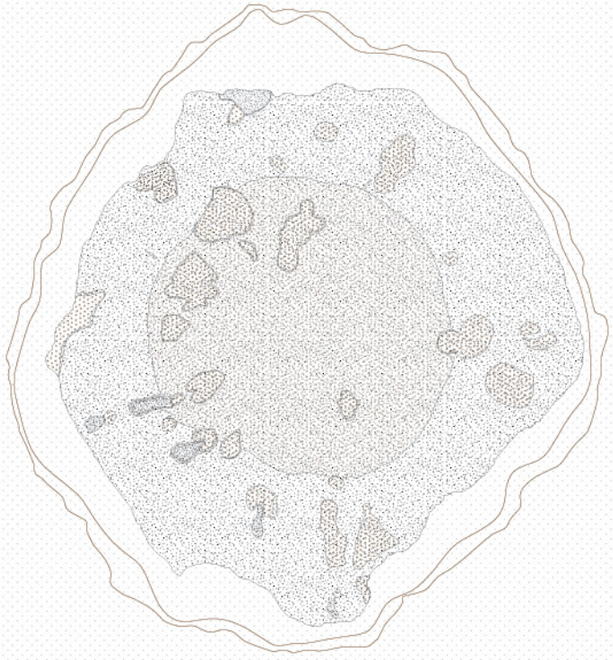
Near the coast and below 600m, the landscape is mainly composed of grassy slopes, except the cliffs, where on dense bushes lie, anchored in the stone. The plateau is the starting point of the island tree-fern, dominating the altitude belt we observed before.
Then, as the topography changes along the geographical center of the island, the vegetation is sparse from 700m to 1500m until becoming a few small bushes scattered around the crater.

Fig.39 : The Hillpiece, road of the potatoes patches area

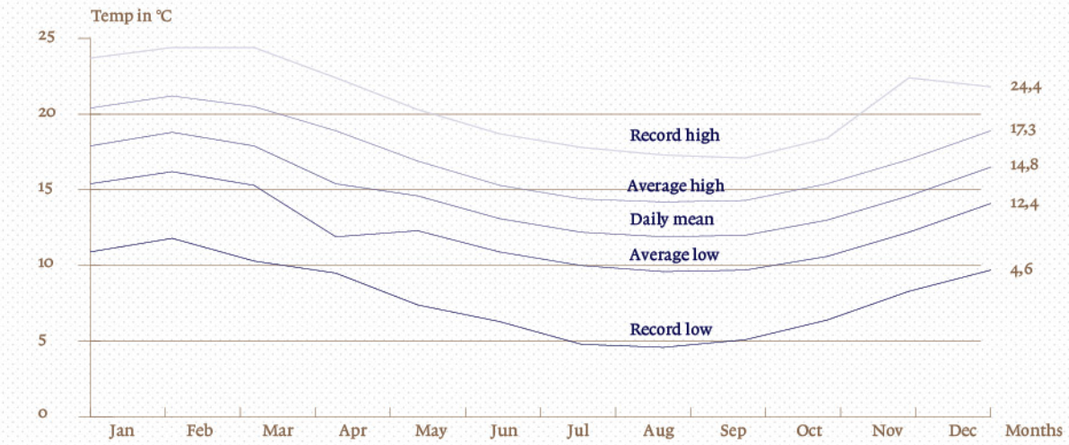
Fig.40 : Storm on the jetty in Calshot Harbor Edinburgh of the Seven Seas



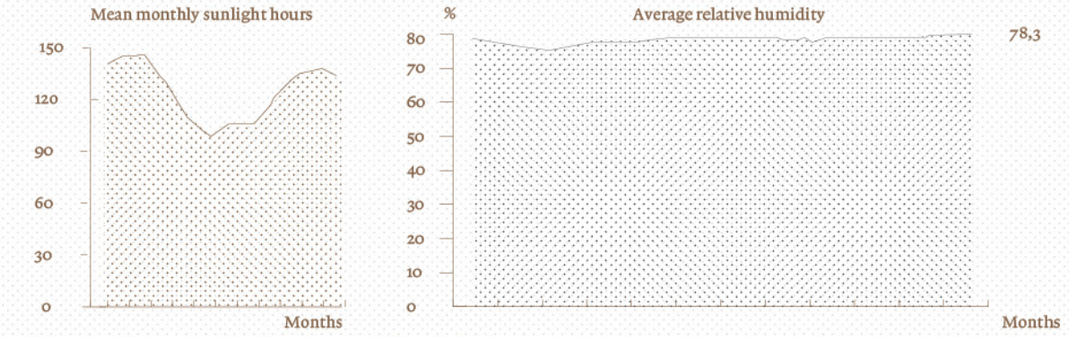
Diag. 19 : Tristan da Cunha topographical conditions



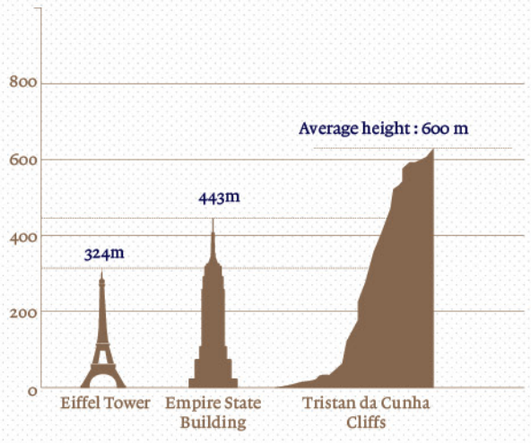
Diag. 20 : Tristan da Cunha geological conditions



Tab. 9 : Tristan da Cunha temperature variations



Tab. 10 & 11 : Main seasonal weather changes in Tristan da Cunha



Diag. 22 : Edinburgh of the Seven Seas' cliffs

Northern Rockhopper Penguin
(Eudyptes crestatus moseleyi)
Population : 150'000

Antarctic Terns
(Sterna vittata tristanensis)

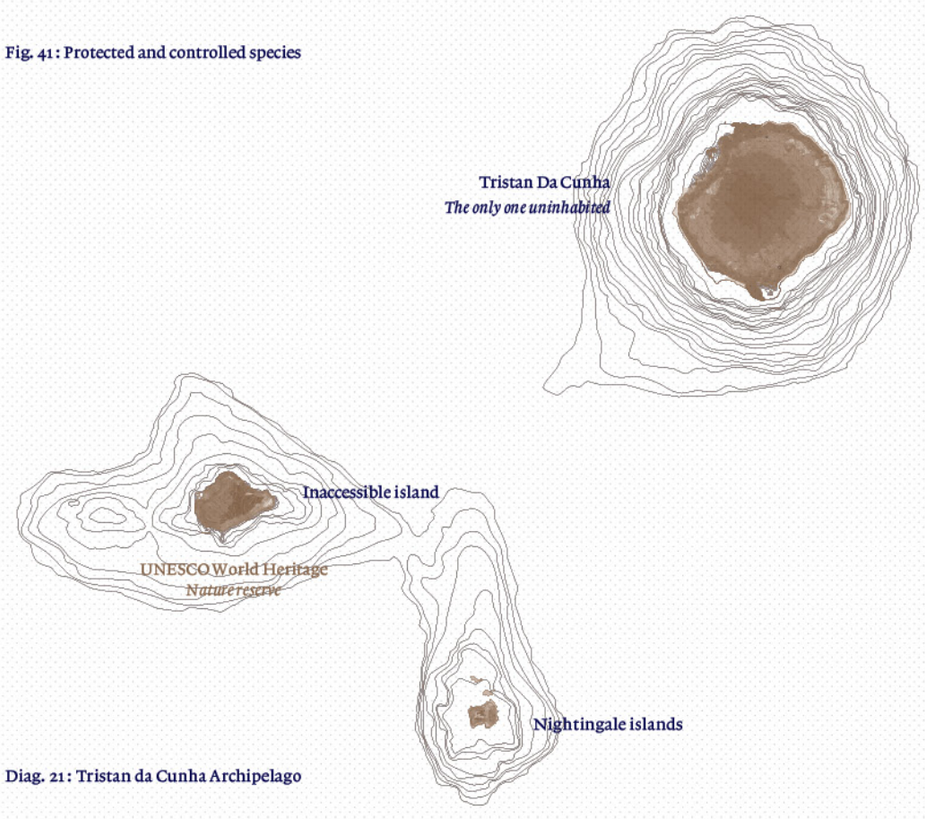
Yellow-nosed Albatross
(Thalassarche chlororhynchus)

Inaccessible Island Rail
(Atlantisia rogersi)

Sooty Albatross
(Phoebetria fusca isee)

The Great Shearwater
(Puffinus gravis)

Fig. 41 : Protected and controlled species



Diag. 21 : Tristan da Cunha Archipelago

Fig. 42 : Between volcano and ocean, the village of Edinburgh of the Seven Seas lies in its narrow fragment of land.

Fig. 43 : Longboats waiting on the road, Tristan da Cunha, 2011.

Fig. 44 : John Tonks, Empire, The fishing Bell

THE FIRM

GROWTH

The formal colonization of the island was in 1816 even if the temporary passage of sailors and whalers was well known as water and food supply in the case of the birds. At that time started the creation of the so-called "Firm", settlement for the few British soldiers wanting to stay on the island after the disband in 1817.

As the geomorphological conditions of Tristan Da Cunha provoked shipwrecks and disasters in the surrounding water, the settlement became the current 268 inhabitant community. (Tab. 9)

RUPTURE

The cliffs make it impossible to walk and travel from the different locations by the shore. Despite the 100 sq. kilometers of the island, there is only one settlement in Tristan da Cunha, which is Edinburgh of the seven seas. However, most of the islanders call it by it's original name, The Settlement, as no others closer than Saint Helena are present.

There are around 100 houses stretching in a narrow area, turning its back to the mountain, powerful visual and physical entity. (Fig. 39) The cliffs shape the use of the island. In this situation, most of the journey to other parts of the territory are impossible to do. The cliffs fall directly into the water, erasing any possibilities to do it by foot or any land vehicles.

In this isolated territory, the life remains, even now entirely focused on the narrow but lively area while on the other side, the houses face the endless horizon of the ocean. (Fig. 42)

The direct confrontation of landscape seem a recurrent aesthetic in the case of the isolated territories, creating an in between territory. It lies here, cut apart the rest of the island by the natural conditions.

OPENNESS

The coast area doesn't escape to this phenomena as neither in Ascension island, Saint Helena or Tristan da Cunha, the coast create suitable conditions to land. More over, Edinburgh has no firths, inlets, fjords, or bay that could serve as a sheltering harbor, only piece of concrete as primitive shelter in Calshot Harbor.

The relation to the ocean was very quickly one of the fundamental tradition of the island. During long time, based on the traditional skills of the first settlers, the construction of the so called "Long-boats" were fundamental to the life in Tristan da cunha. Boats we still can see next to the shore, waiting for favorable weather. (Fig. 43) The many storms and windy days are truly an unpredictable aspect of the island location, influenced by the proximity to the "Roaring forties", wind corridor flowing all around Antarctica.

However, despite the often waits, the fishing, egg gathering and the catch of Tristan lobsters in the surroundings the island were during long time major resources. By being so, the unusual ring of the traditional fishing the bell in the clear sky days shows the very specific phenomena of the fishing days departure. (Fig. 44)

As the sound spread, under the first sunny spell, the inhabitants embark and launch their boats in direction of their respective activities, from fishing to visit of the multiples locations of Tristan da Cunha. It creates a strange temporality, alternating between very long waits and short events, as vessels arrival or fishing days.

LIMITS

In parallel, the Tristanians mostly grow potatoes as they developed, after many years of extreme isolation, skills in gardening, and managing their limited resources. Grazing land is precious, and the conservation of all year round empty lands allows the community to ensure that the limited pastures are not over-exploited. In Tristan da Cunha, the land is communal and livestock is proportionately divided amongst the community.

The observation of the southern part of the land belt reveals the presence of series of 1m height walls, succession of scattered corrugated metal houses, and enclosed kitchen gardens a the end of the unique 6km long path. (Fig. 45)

The Patches are of major economic importance to the community, and the preservation of an heritage seems to be developed. Every family, with it's own potatoes kitchen garden developed their own techniques.
From the usage of wool, guano from the birds breeding areas, to decomposed shells, the Tristanians use the complete resources of their environment to create specificity.
By doing so, the horizontal share of resources by the population creates a community based management of the plains.

The result is a mostly a green open landscape, from the North to the East, sometimes stripped by black stones walls. In the south, hundreds of plots of brown soil contrast then with the green grass.

Family names	Males	Female	Total
Glass	21	20	41
Green	33	34	67
Hagan	3	5	8
Repetto	7	10	17
Lavarello	29	25	44
Rogers	13	15	28
Swain	15	33	58
Collins	0	2	2
Squibb	1	1	3
Total	123	144	268

Tab. 12 : Seven family names and their gender repartitions in Tristan da Cunha

Fig. 45 : The potatoes patches enclosed by series of walls

Fig. 46 : The cattle graze without restrictions in the center of the Settlement

COMMUNITY

This aesthetics without similarities to the landscape of some of the Scottish lands, with very little physical limits except topographic, stretching as far as the territory allows it. However, in Tristan da Cunha, the isolation creates specific conditions of community expression. The absence of separations produces also a strange aesthetic, without clear boundaries nor clear specificity of land.
Indeed, the island, through the Constitution, after the abandonment of the island by the Crown Colony, became a paradoxical communist community. The voluntary agreement signed in November, 17th of 1817 proposed an equal shares of stock and stores, equally divided profit with equal shares in paying for purchases, and no one superior over another. By doing so, the cattle graze around the houses while the islanders are in the same area, in the very center of the settlement. (Fig. 46)

Everyday life on Tristan da Cunha takes place mainly in and around the Settlement, even if multiples locations are part of this community appropriation of the place. Especially the Caves and the Stony Hill on the fragment of low land on the south-western side.

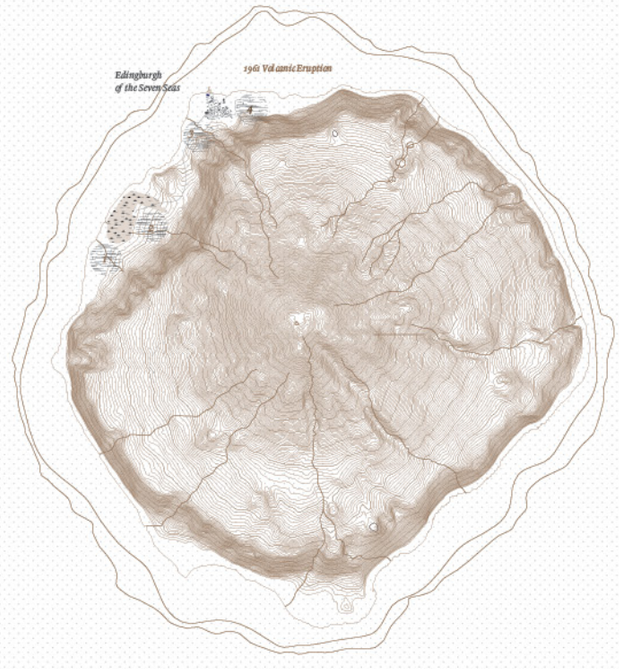
MICROCOSM

With one port, one bar, one community hall, two churches, one school, one post office, one tourist office, one swimming pool and a museum, every building is part of the expression of the community.

As the reduction of a small world, the Tristanians, used to the every day routine, escape from time to time by boats to the camping huts, even more isolated shelters within the island. The different huts, houses, storages are however in specific locations, in a close proximity of access, maritime or in land. (Diag. 23)

In a fully understanding of this island, the inhabitants manage, control, and exploit their own island in a subsistence logic. And the occasional life around the area doesn't deny this reality as we can observe through the patches, the cattle management or any of traditional activities.

Guarantee to a self sufficiency, traditions and all year round activities allow the community to create a common ground, a culture of the place. From the Settlement, the working life organize and deeply shape the territory.



Diag. 23 : Land-use Map, between fishing and agriculture

Fig. 47 : The *Settlement* with wind protections

Fig. 48 : Volcanic stone rubbles wall

Fig. 49 : Potatoes patches storage hut

Fig. 50 : Street surrounded by flax

LAND & BRICOLAGE

THE SETTLEMENT

Most of the life is focused on subsistence of the community and carefully use of the natural resources.

As we write, there are about one hundred houses in the whole island, including camping huts in Sandy Point and Patches huts.
Mostly with one single storey, the houses spread from the coast to the rear cliff, abrupt and powerful. The orientation of the constructions reinforce the dialectic between the two topographical entities.

ROARING FORTIES

Except some of the houses, all of them are organized along a recurrent attitude. The main house as loft, with an adjacent shack, sort of shelter, where food, goods and everyday life tools are stored.
However, one of the first observable characteristic is the architecture adaptation to the "Roaring Forties" environment, usually developed in particularly windy regions. (Fig. 47)

The volcanic stones walls enclose property plots, with a strange similarity with the Potatoes Patches, creating physical separations between the houses direct environments. (Fig. 48 & Fig. 49)

The rubbles, directly extracted from volcanic stone quarries a bit further from the village, lie as many black lines in the green soil in between the dense separating vegetation. Indeed, the hedges flax, imported by the settlers, have the main purpose to protect even more the houses from winds and storms. (Fig. 50)

It creates a aesthetic homogeneity, a scenic appearance from whoever come from the sea by boat, facing all the windows and the houses entrances. It creates a certain uniformity despite the multiplicity of constructions materials and forms. However, it isn't a formal desire.

Undoubtedly, the settlers realized quickly the predominance of the northeast strong winds in this location. Then this systematic orientation allow to greatly reduce the wind pressure on the constructions while still having the view toward the ocean.
By repeating this logic, the building style was applied continuously by the generations. And only one house doesn't follow this essential factor. The British Governor house.

Turning the back to the mountain, the houses welcomes the North West view of the South Atlantic, waiting, as the painting of Augustus Earle in 1824 shows well, depicting the long wait of a ship in the shores of Tristan da Cunha.
The repetition of multiples gestures in the settlement aesthetic reveals a vernacular logic, as reaction toward natural conditions and the multiples traditions.

AS FOUND

The current constructions aren't far from the original cottages created by the William Glass, first settler in Tristan Da Cunha. Indeed, despite a few changes in the traditional look of the thatched roof houses, the main elements in this vernacular remain.

Gradually replaced by corrugated metal sheets and asbestos-cement sheeting (Daniel Scherier, 2011), the flax was the main roofing material. (Fig. 51). This first style includes the local materials as fundamental elements, showing an spontaneous response to environment. At that time, soft stone, volcanic cone, turf, and flax were the used materials. (Diag. 24)

Soft stone to built the main walls, volcanic stones to create the parallel support, the foothills and the foundations while using the very same stone rubbles to create the limits of the garden.

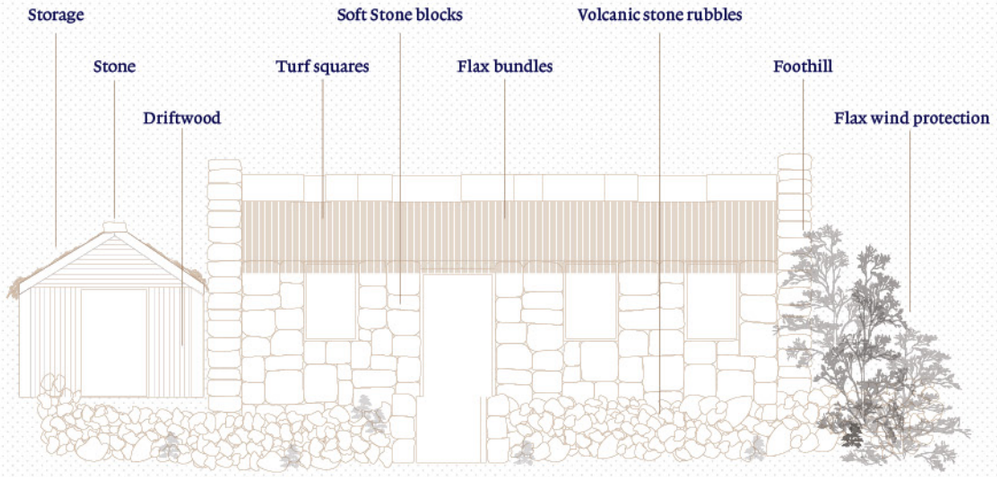
In addition, the flax bundles lie on floating wood found as many other objects during the many shipwrecks around the island. As well as the rear storage close to each houses.

The houses, located then in the place of the volcanic eruption in 1961, were mostly destroyed as the population evacuated and let its heritage back in the island.

After this traumatic escape, the return on the island in 63 was the trigger of the introduction to new materials, concrete, windows and modern confrontation. However, we can observe an evident similarity in the style as the main features of the constructions remain. The Prince Phillip Hall and the many variations of the houses are strong contemporary examples of these interpretations. (Fig. 52)

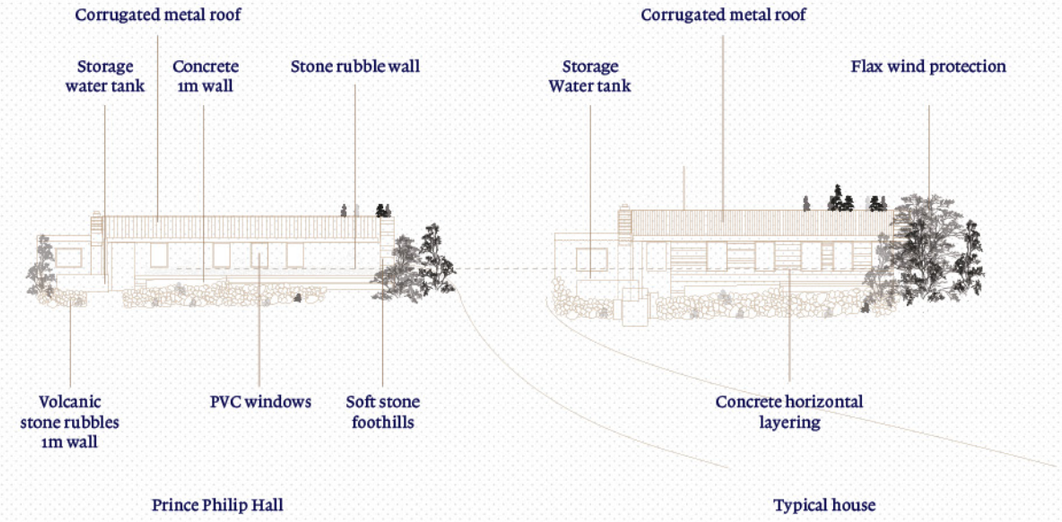
The comparison of the houses reveal the same fundamental characteristics. From the stone rubbles foothills, to the wooden a-side storage, the application of new materials follow the same skills and uses. (Diag. 25)

An ambiguous coexistence between the new and the old, the broken and the new imported speaks strongly about the relation the Tristanians have toward mainland. It becomes an expression of persistence. Persistence of materials lack, and persistence to environment. (Fig. 53)



Diag. 24 : Thatched traditional house

Fig. 51 : Traditional hatched House as island museum



Dig. 25 : Building variations

Fig. 52 : The Prince Philip Hall

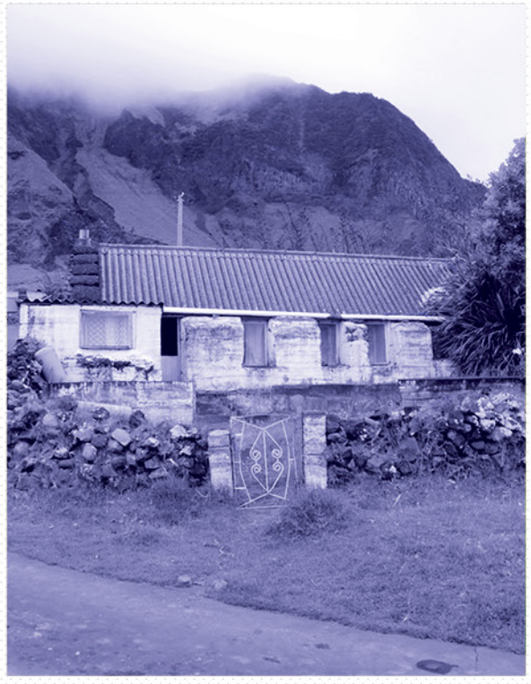
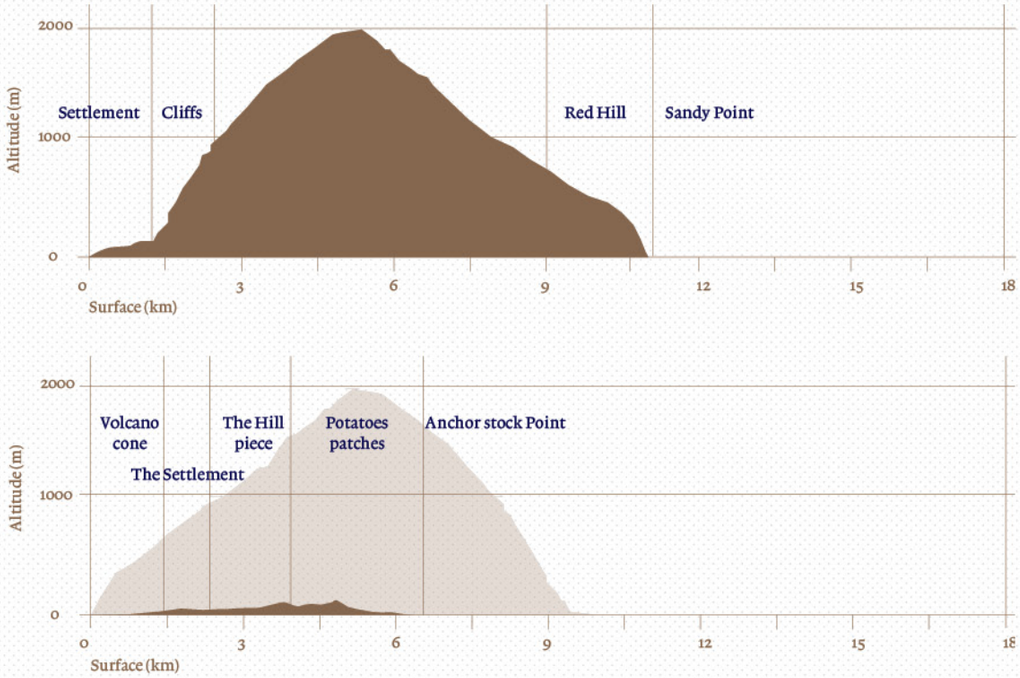
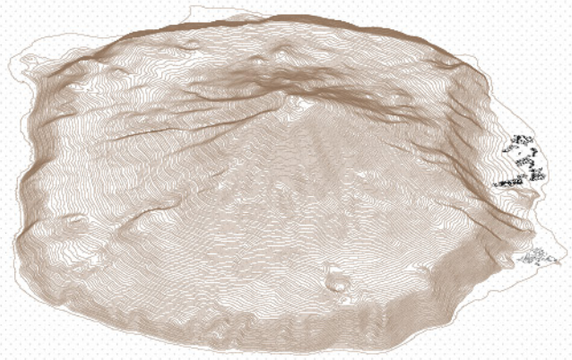


Fig. 53 : House



Diag. 26 : Sections North-East / South-West to North West / South East.



Eroded Cone
Fern Bushes
Grassy Slopes
Coastal Grass
Pastures
Bathymetry
Bathymetry depth
Cinder Cones
Cinder lava Flow
Lava
Pyroclastic
Watersheds
Topography
Lakes

Diag. 27 : Topographical variations around the volcanic cone

Tristan Da Cunha Map - *Vernacular expressions*
1/110'000

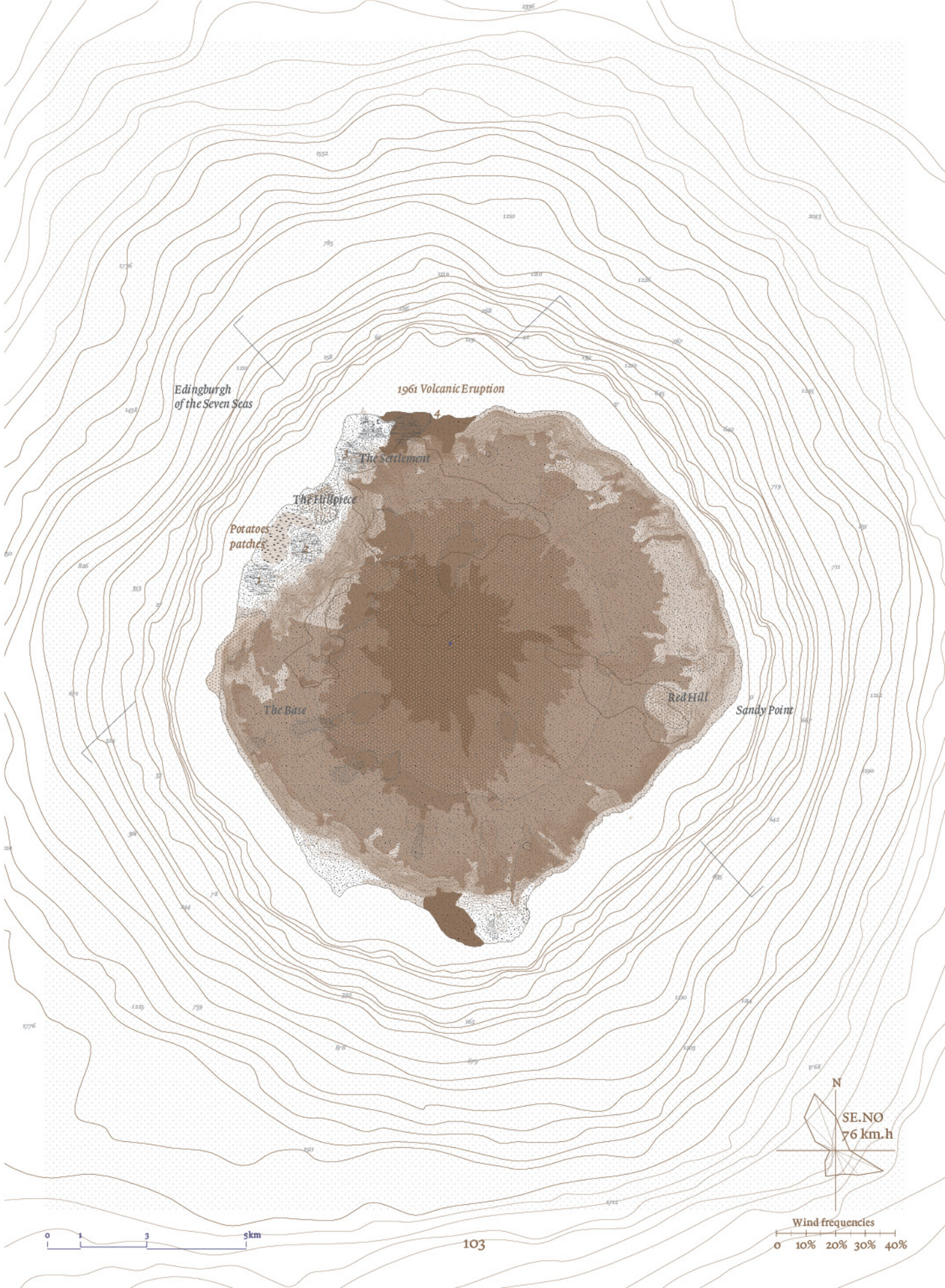


Fig. 54 : Potatoes corrugated metal sheets shelter. It lies as an in-between storage and stop along the unique road to Patches.

3.1 - Introduction to British Overseas Territory

ECONOMY

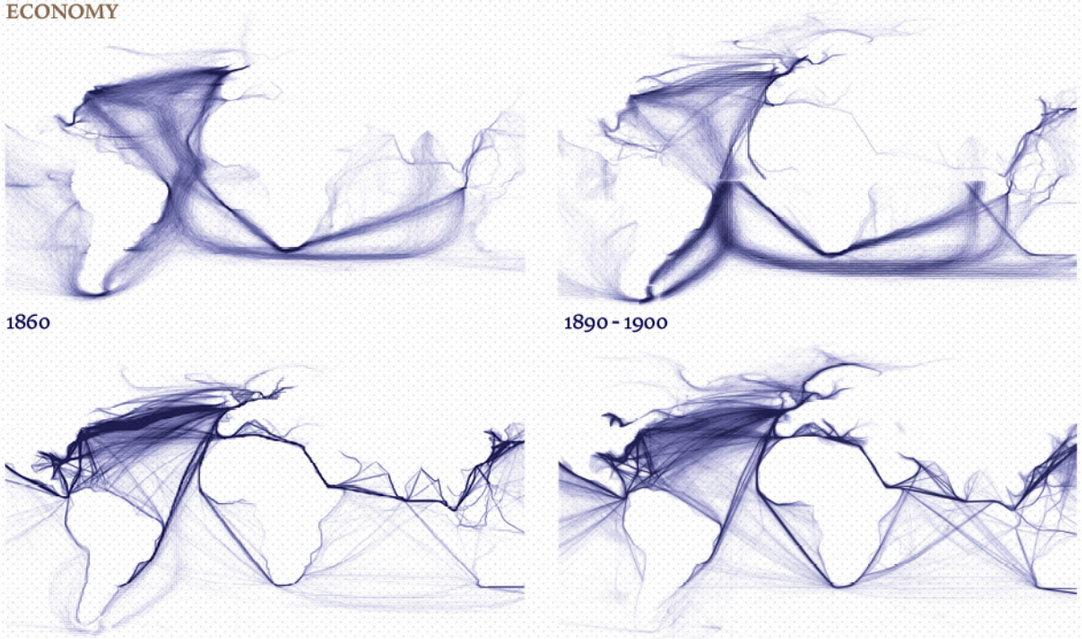


Fig. 2 : Evolution of shipping lanes and maritime supply network worldwide.

"We might have to rethink what exactly constitutes an isolated island. Because it is no longer a function of geology or topography."

Helmus M. R., Mahler D. L. and Losos J. B,
Island biogeography of the Anthropocene,

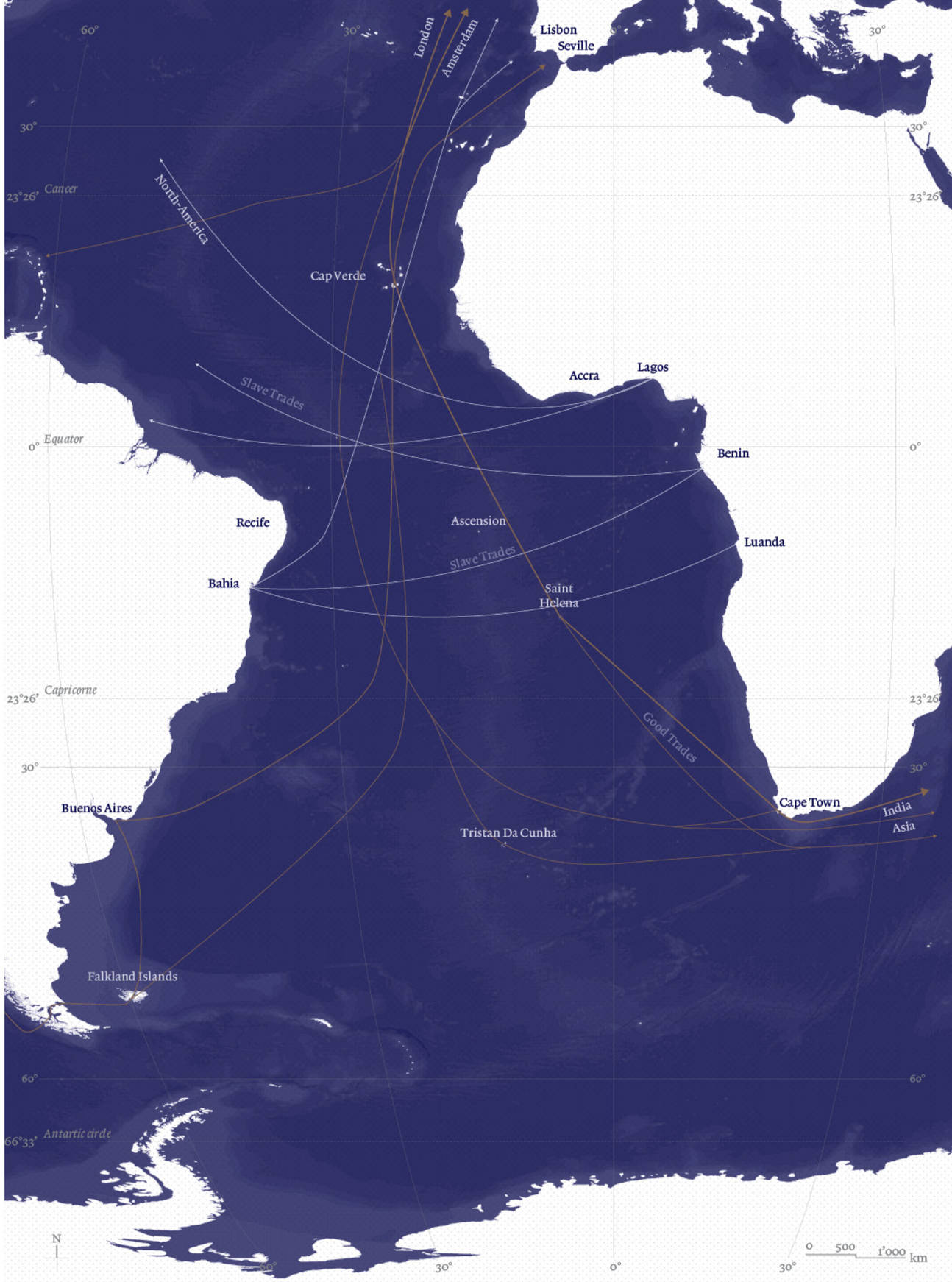
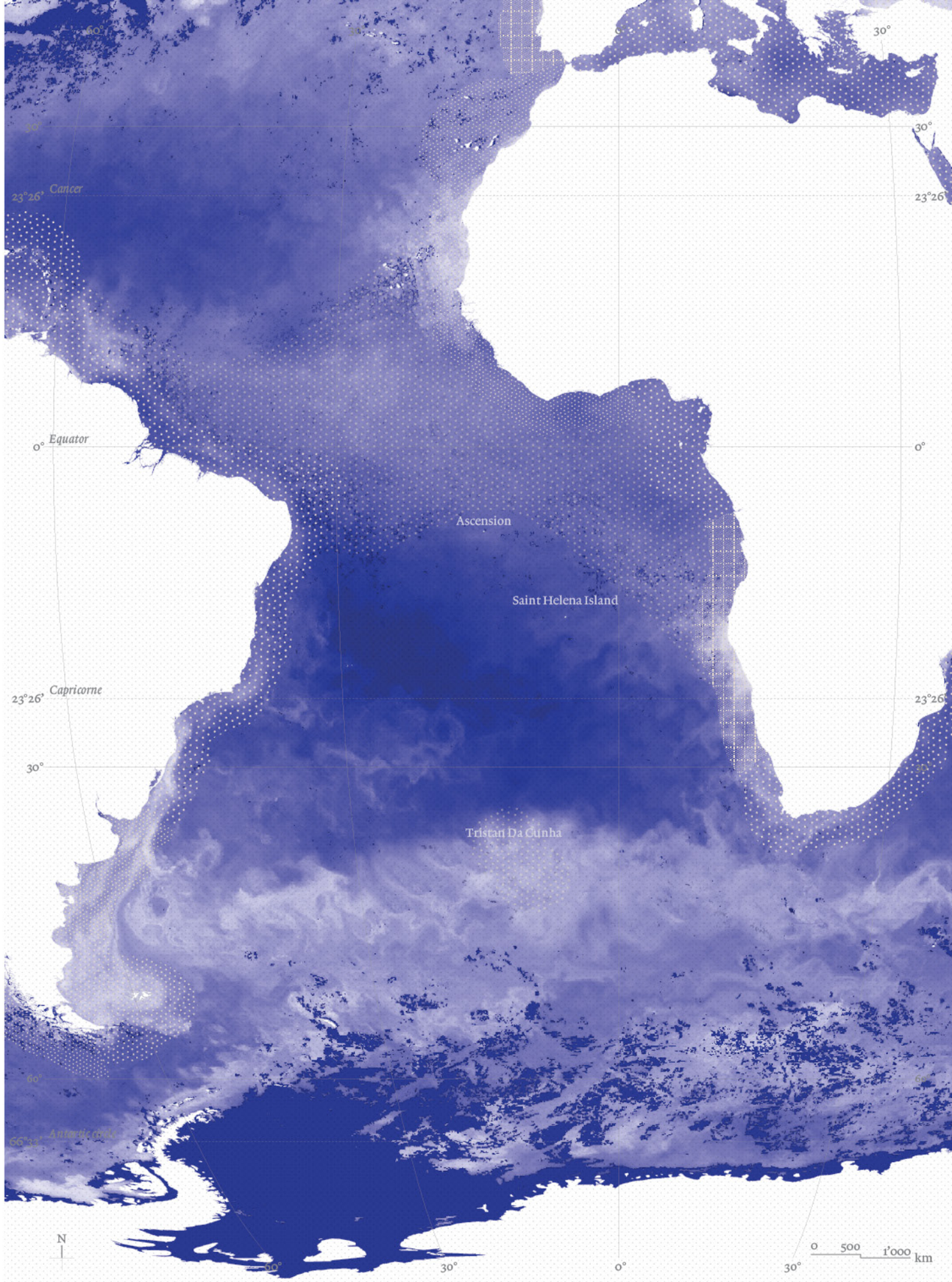


Fig. 3 : The Craw-fishing factory at Tristan Da Cunha provides 75% of the inner GDP

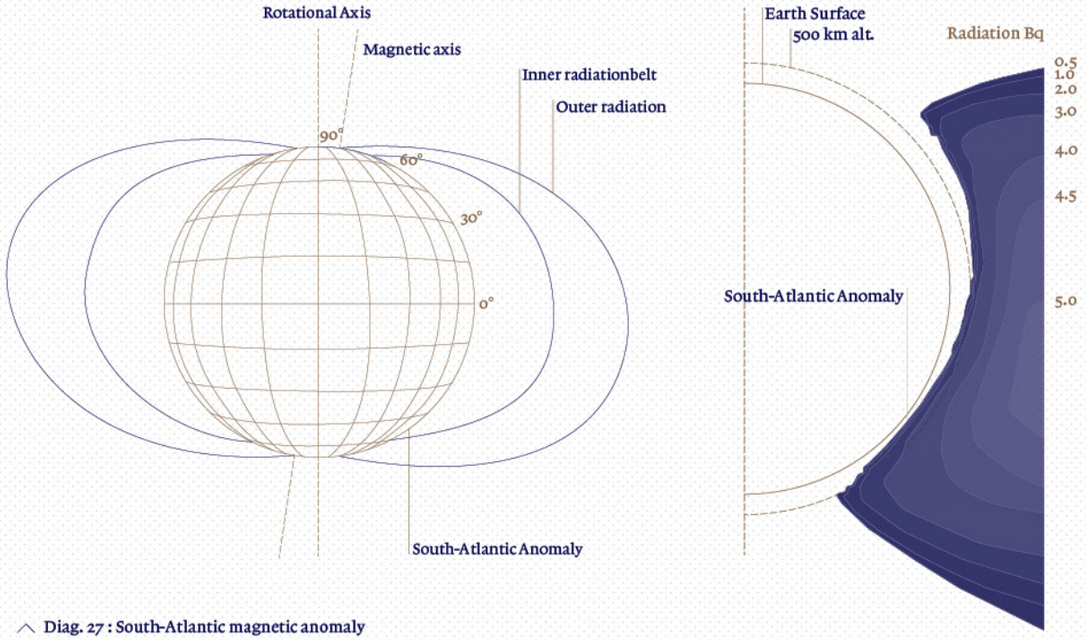
"The UK is responsible for the fifth largest area of ocean in the world, measuring 6.8 million square km, over twice the size of India, and 30 times the size of the UK itself."

Great British Oceans Coalition act in 2015 about the role played by United Kingdom in the marine protection.



South-Atlantic Map - *Fishing yield, in Tonnes per Km² per year* 1/50'000'000

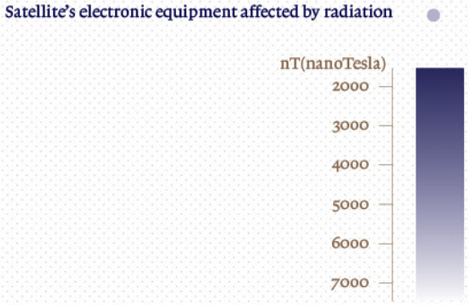
STRATEGIC TERRITORY



Diag. 27 : South-Atlantic magnetic anomaly

"All they know is that radiation in the South Atlantic Anomaly is intense, that spacecraft have to be designed to deal with it and that, even then, there is potential for peril."

Jim Hodges for the Defense News magazine in 2013



South-Atlantic Map - *Magnetic anomaly radiation*
1/50'000'000

Fig. 1 : Plantation House's portrait of the HM Queen in the main lounge of the building. Jon Tonks, Empire

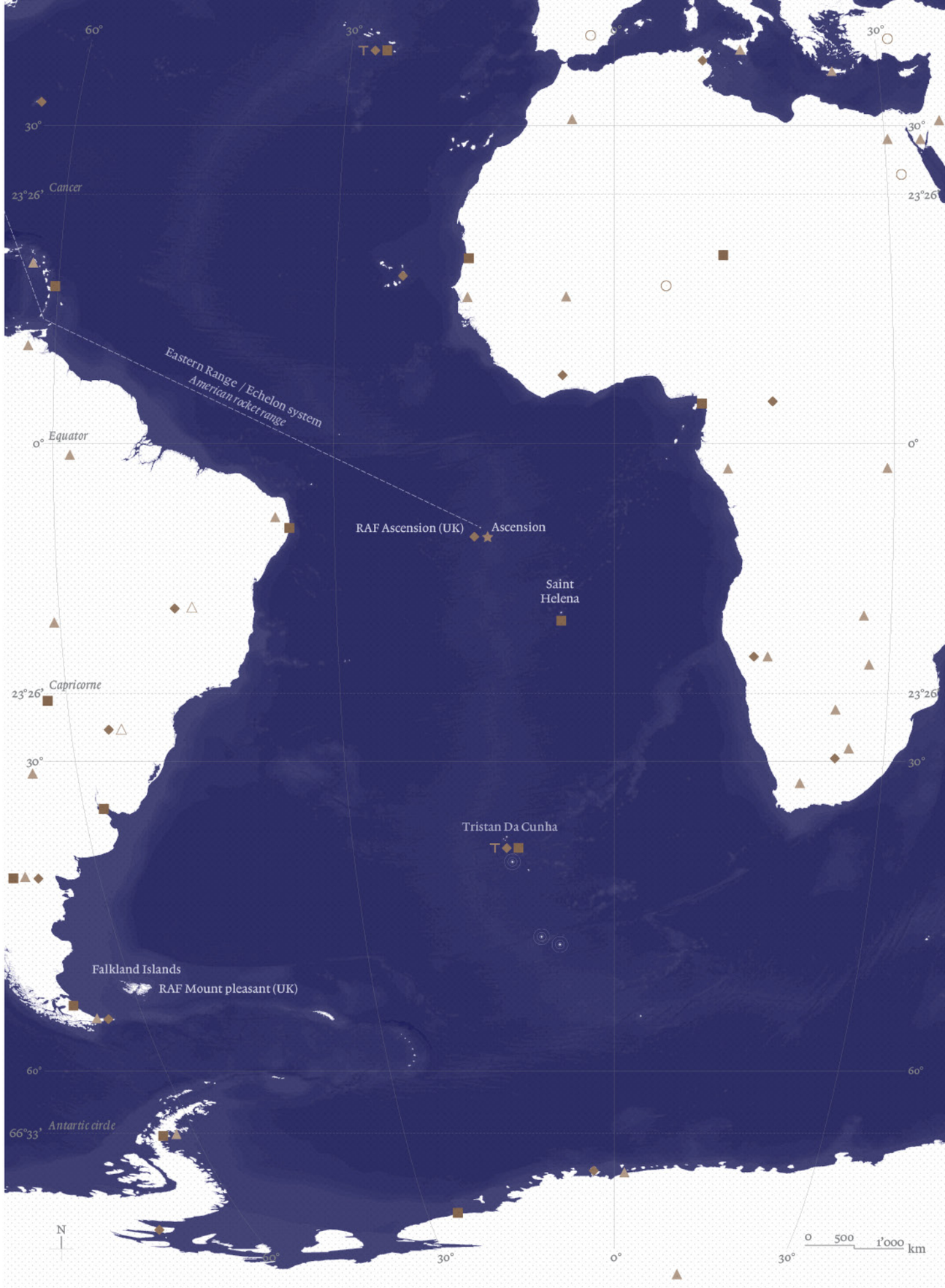
"These islands remain firmly British in traditions, community and lifestyle – with afternoon tea interrupted by volcanic evacuation drills, and palm trees."

Jon Tonks in Aesthetica Magazine, 2015

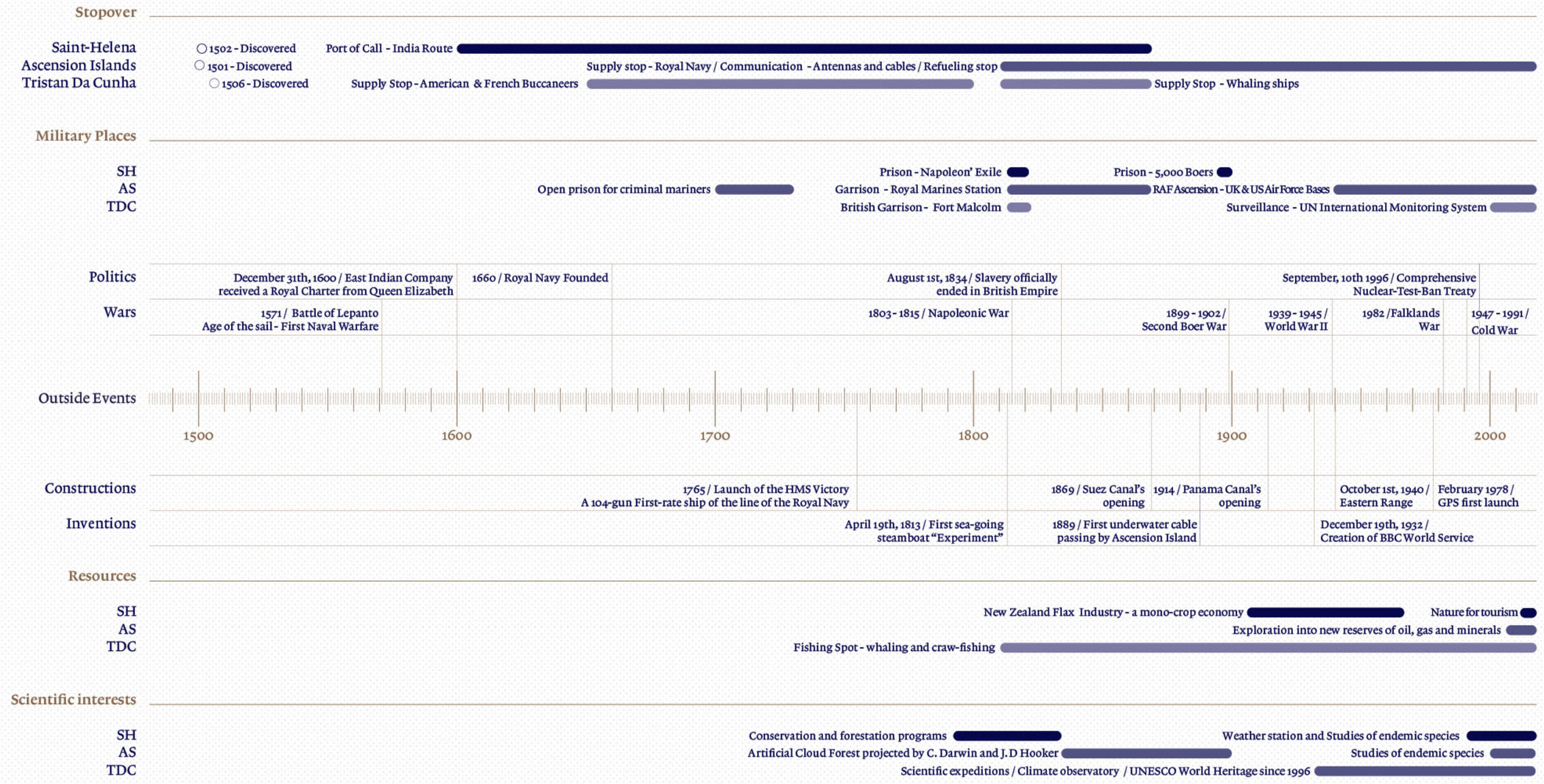
CTBTO stations
(Comprehensive Nuclear-Test-Ban Treaty Organization)

- Hydro-acoustic (hydrophone) station
- Infra-sound station
- Seismic auxiliary three-component station
- Seismic primary three-component station
- Hydro-acoustic (T-phase) station
- Radionuclide station
- Nuclear test recorded

> South-Atlantic Map - *Nuclear test surveillance stations* 1/50'000'000



CHRONOLOGY


Stopover
Saint-Helena
Ascension Islands
Tristan Da Cunha
1502 - Discovered
1501 - Discovered
1506 - Discovered
Port of Call - India Route
Supply stop - Royal Navy / Communication - Antennas and cables / Refueling stop
Supply Stop - American & French Buccaneers
Supply Stop - Whaling ships
Military Places
SH
AS
TDC
Open prison for criminal mariners
Prison - Napoleon' Exile
Prison - 5,000 Boers
Garrison - Royal Marines Station
RAF Ascension - UK & US Air Force Bases
British Garrison - Fort Malcolm
Surveillance - UN International Monitoring System
Politics
December 31th, 1600 / East Indian Company received a Royal Charter from Queen Elizabeth
1660 / Royal Navy Founded
August 1st, 1834 / Slavery officially ended in British Empire
September, 10th 1996 / Comprehensive Nuclear-Test-Ban Treaty
Wars
1571 / Battle of Lepanto Age of the sail - First Naval Warfare
1803 - 1815 / Napoleonic War
1899 - 1902 / Second Boer War
1939 - 1945 / World War II
1982 /Falklands War
1947 - 1991 / Cold War
Outside Events
1500
1600
1700
1800
1900
2000
Constructions
1765 / Launch of the HMS Victory A 104-gun First-rate ship of the line of the Royal Navy
1869 / Suez Canal's opening
1914 / Panama Canal's opening
October 1st, 1940 / Eastern Range
February 1978 / GPS first launch
Inventions
April 19th, 1813 / First sea-going steamboat "Experiment"
1889 / First underwater cable passing by Ascension Island
December 19th, 1932 / Creation of BBC World Service
Resources
SH
AS
TDC
New Zealand Flax Industry - a mono-crop economy
Nature for tourism
Exploration into new reserves of oil, gas and minerals
Fishing Spot - whaling and craw-fishing
Scientific interests
SH
AS
TDC
Conservation and forestation programs
Weather station and Studies of endemic species
Artificial Cloud Forest projected by C. Darwin and J. D Hooker
Studies of endemic species
Scientific expeditions / Climate observatory / UNESCO World Heritage since 1996

3.2 - Colonial expressions

HISTORICAL CONDITIONS

The observation of history in the South Atlantic Ocean allows to understand the complex phenomena of island societies.

Indeed, oscillating between an outside world events and the occurrence within their own territories, the communities develop multiples expressions.

This way, we refer to historical context as numbers of moods, attitudes and different conditions that exist in a defined territory. As setting for an event to happen, it creates a matrix for the development of settlements.

The case of the three islands of Saint Helena and dependencies share common historical conditions despite a great numbers of differences.
However, beyond the only range of historical events, the superimposition of phenomenon creates portraits of these territories.

COLONIAL PROGRAMS

The colonial impact on remote territories is always large as the limited territory can neither extend neither react toward a dominant logic.

In the same way that we observed the emergence of vernacular attitudes within Saint Helena, Ascension Island and Tristan da Cunha, the application of colonial activities deeply shapes landscape aesthetics.

Indeed, the artificial presence of economical, often along political and military logics, is fundamental to the constitution of a reaction from inhabitants. In its strongest form, colonization of a territory is the complete importation of inhabitants and the repetition of a culture.

Through the condition of this vehicular culture, it allows us to question the spatiality and needs of remote territories. Intensive Agriculture, military restrictive urbanism, or exclusive trades become then the support of settlements.

CONSTRUCTIONS

Importation of goods and materials are the fundamental aspect of the current urbanization of territories.

In the same way that the vernacular is the expression of an emergence from the site, the colonial is in this study the expression of a disconnection from the very same physical landscape. And the construction of these entities confront a logic a culture of the site.

The case of the remote territories is particularly interesting because it questions the model of the importation. And the logistic behind the production of the colonial architecture is fundamental.

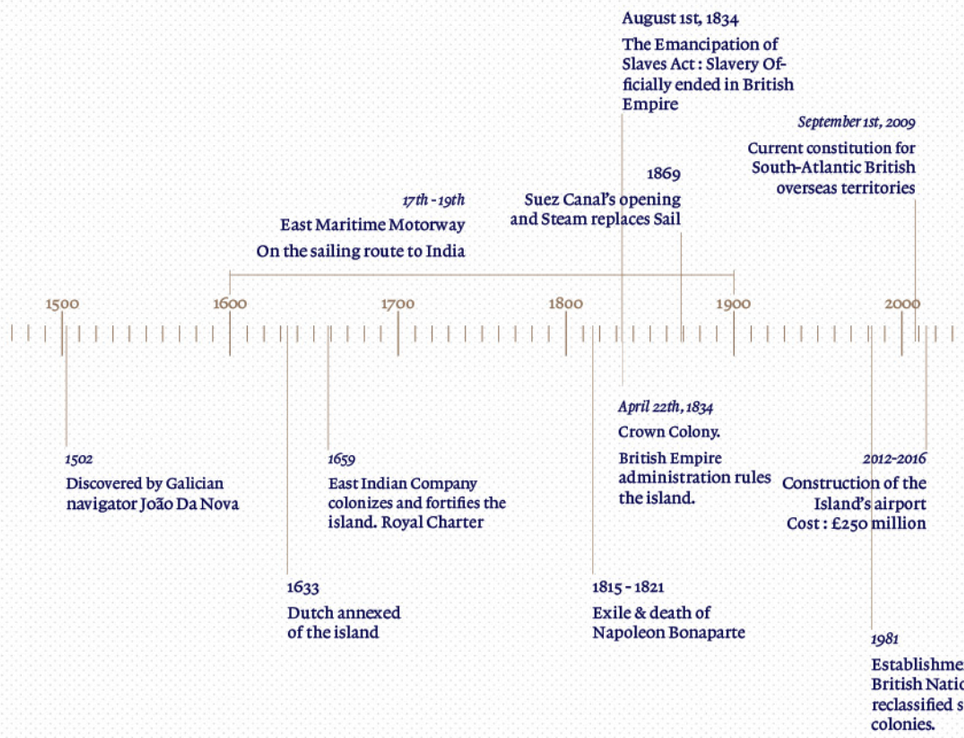
The analysis of colonial patterns in the aesthetic of the 3 remote islands reveals the role of resistance and dominance than architecture can play.
The case of Saint Helena, Ascension Island and Tristan da Cunha are degrees in the development of such trends.

Fig. 1 : US GI policing the runway at Wideawake Field, Ascension Island, May 1944.

Fig. 2 : Blast masters. Explosions on the St Helena aircraft site, 2015.

Fig. 3 : Bricks and Beams : The shell of the airport's terminal building.

3.3 - Saint Helena



INDIA ROUTE

Named after Helena of Constantinople, the mother of the Roman Emperor Constantine, Saint Helena is the Britain's second oldest remaining Overseas Territory. Having passed between Portuguese, British and Dutch possession, this island, one of the remotest place on earth, is lying 1'950 km due West of Namibia, Angola and 4'000 km East of Rio De Janeiro.

In 1659, the East India Company formally colonized and fortified the island by a Royal Charter. With a size of 16 by 8 km, this small volcanic tropical island became after that and for centuries an important resupplying station for ships sailing from Europe to South-Africa and Asia.

The population of over 3'000 in 1800's consisted essentially of British settlers and soldiers, Chinese laborers and African Slaves.

The August 1st, 1834, British Empire officially ended slavery and the Royal Navy around and based on Saint Helena began the interception of slave ships crossing the Atlantic as duty. Thus, thousands of Africans arrived in Saint Helena. Some of them returned to Africa or West Indies, whilst others just stayed and remained integrated with the population.

Aboard the HMS Northumberland, Napoleon Bonaparte was brought in 1815 to Saint Helena following his surrender after the Battle of Waterloo. The British put him in a place where he could never be rescued following his escape from Elba. He died there after six long years spent at the Longwood house with few faithful followers (priest, doctor, royal commissioner, locksmith, artist...) and servants.

From 1793 to 1833, the island was the site of a series of experimentation : conservation, reforestation or even less rational experiences like the tentative to boost rainfall artificially to increase the agriculture.

In the late 1800s the large number of ships stopping by St Helena declined quickly from approximatively 1'000 in 1855 to only 288 in 1889. It's the result of the rise of the steam boat and the opening of Suez canal in 1869 that offered a shorter route between Europe and Asia.

As numbers of island, the dependency to the passing by vessels was essential to trade and cultural expression of the islander societies. And Saint Helena wasn't an exception of this effect during almost one century.

During this same period, control of Saint Helena was passed from the East India Company to the British Crown. The island became a Crown colony : a royal colony ruled by colonial administration of the British Empire since then.

MODERN TIME

In 1981, British Nationality Act reclassified the crown colonies including Saint Helena as British Dependent Territories. Islanders lost their right of abode in the UK, employment declined and many people left to find job on Ascension island or Falkland islands.

After a long wait, the British Overseas Territories Act in 2002 reinstated the UK citizenships that allowed islanders, the "Saints", to work freely in UK. The Dependent territories was renamed British overseas territories and in 2009, a new constitution offers equal status to Saint-Helena and it's two territories : Ascension and Tristan Da Cunha.

One of the main result of this Act then became, with the return of citizenship, the appearance of an escape route. Roughly a quarter of the island's population has since left 'prison home' Saint Helen. 1

This executive authority is exercised on the behalf of Queen Elizabeth II by the governor of Saint Helena. The representative of the British monarch leads the British overseas territories with legislative councils and administrators on each islands.

INITIATIVES

Many initiatives were launched as investors inhabitants tried to react but none of them really shaped Saint Helena as an independent country of the United Kingdom Empire. The remoteness of the island even led to the temporary camp during the Boer War, over 4,500 prisoners being held on camps at Deadwood Plain and Broad Bottom between 1900 and 1902.

Initiatives have included whaling, flax production, tourism, forestry and fishing, although only the latter has truly proved successful during the years, as people from different origins arrived.
However, the island, largely covered by New Zealand flax, a legacy of the former agricultural industry during the Second World War. Industry which allowed, only one time in its history, to reverse the balance between the imports and the exports.

Far from being now an autonomous economy, Saint Helena inhabitants mainly depend from the British Overseas territories and the financial aids. By being so, Saint Helena received $12.6 million in aid in 1995, and in 1997, $5.3 million from the UK, also showing the last years' desire to reduce its involvement. 2
Through this system, in 2012, UK government invested more than £250 million in the construction of the island's airport. 3 Expected to be fully operational in 2016, the airport aims to support the creation a self-sustaining economy and to reduce dependency on British government aid.

The proposed airport is, in many ways, a continuation of this process of successive investments, many attempt, to create a specific, mono oriented niche to exploit the territory and relaunch the economy.

TOURISTIC PERSPECTIVE

With the opening of the airport, the future of Saint-Helena may focused on tourism industry and develops new employments for the 3'800 islanders.

Indeed, this wild tropical nature may interest a lot of tourists looking for adventures such hiking. Then, the question of preservation will be primordial.
As the multiples activities were developed, many questions rises for the future of the island. Indeed, the emergence of the tourism tend to bring a positive impact to the economy. The identity which appeared to Saint Helena island always been a confrontation between culture, creating specific aesthetics.

In a spatial perspective airport already shows a very radical approach of this mainly protected territory, protected endemics habitat, and question the generic production of landscape through the colonial logic of modern activities.

Fig. 1 : Sainte Hélène, Ville et Rade de JamesTown, 1858.

Fig. 2 : Benjamin Robert Haydon, *Napoleon Bonaparte*, oil on canvas, 1830.

Fig. 3 : The Lake District, July 2014

Fig. 4 : Jon Tonks , Empire, 2013 Joyce Elizabeth Greentree, The Post Office

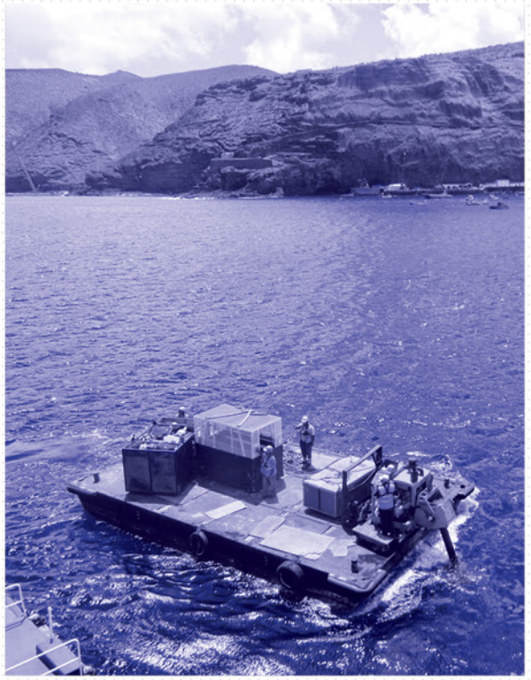
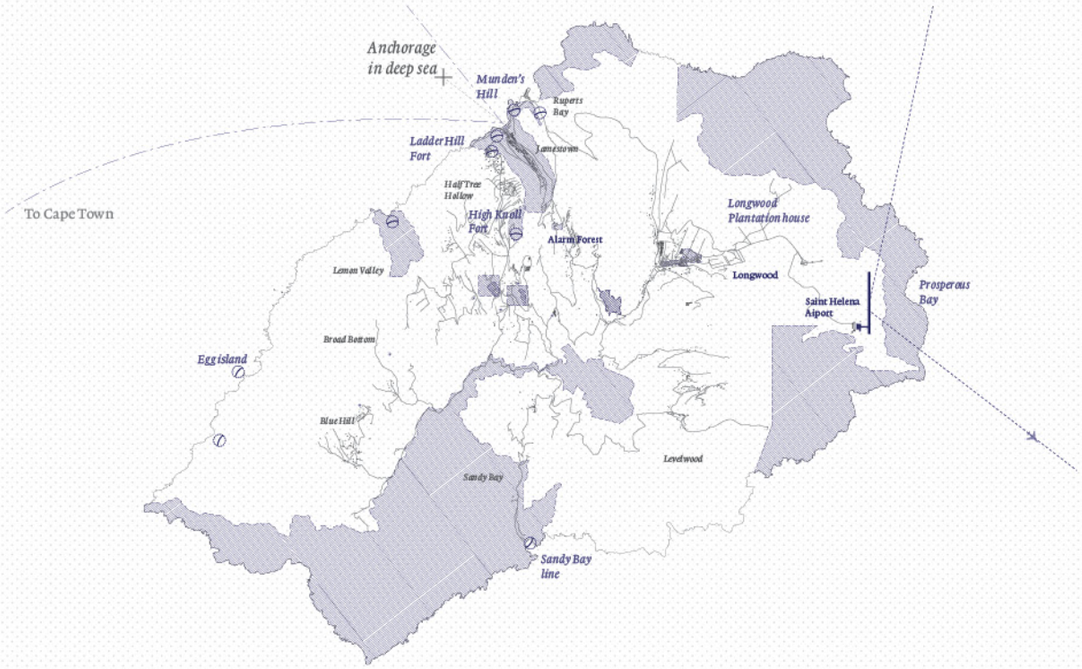


Fig. 8 : St Helena raft to carry goods from vessels to the port

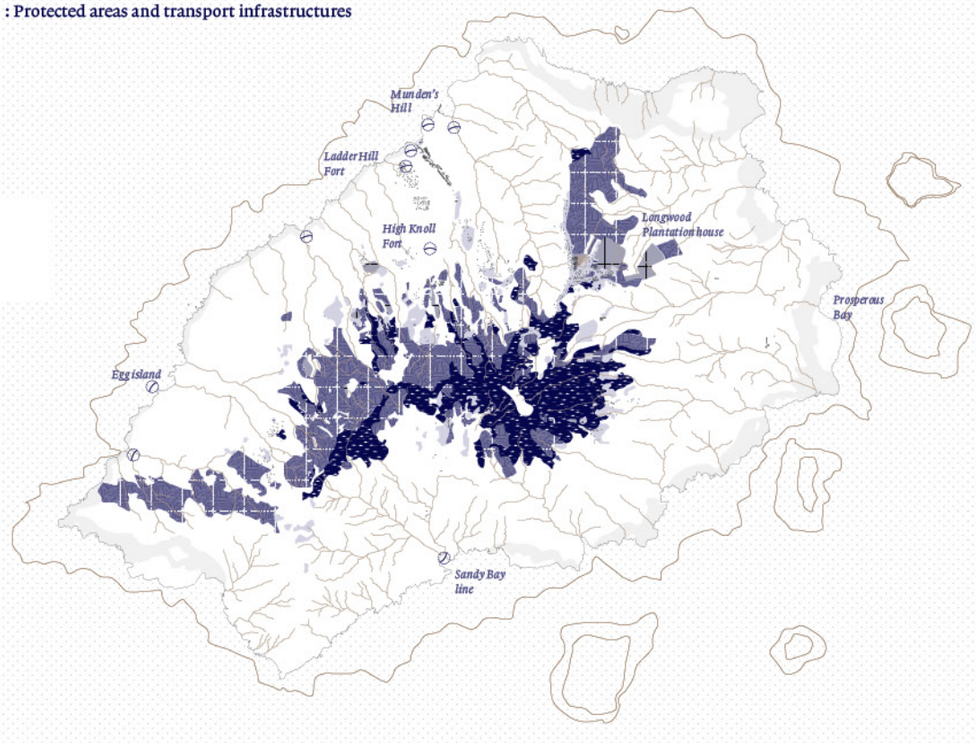
Fig. 9 : Saint Helena Airport construction.

"Your adventure begins with the RMS St Helena as she is the last commercially operating Royal Mail Ship in operation today."

Saint Helena Tourism company website about the role of the RMS Saint Helena in the current access to the island.



Diag. 1 : Protected areas and transport infrastructures



Diag. 2 : Agriculture and pastures areas under surveillance

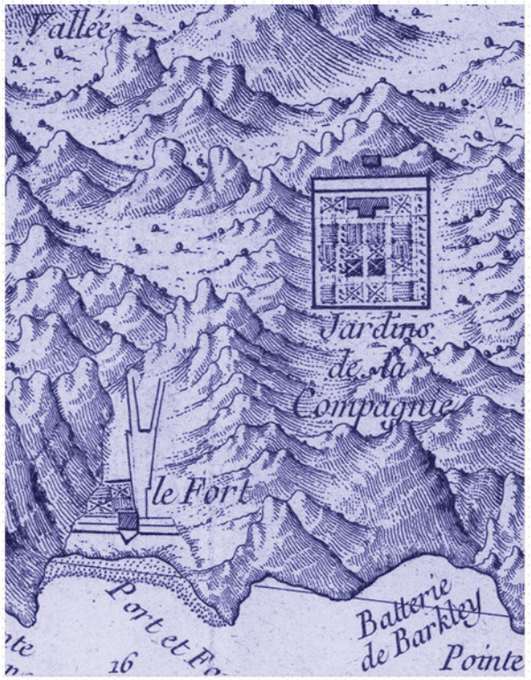


Fig. 10 : Plan de l'Isle Sainte Helene, 1764

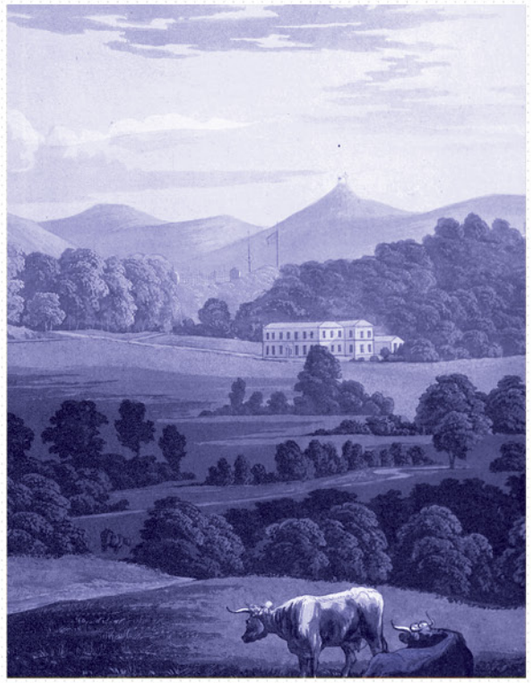


Fig. 11 : Plantation House

Fig. 12 : Longwood Napoleon House

AGRICULTURE AND TOURISM

FORTIFICATIONS

The first fortification to be established was the castle at the small settlement of James Town. From the only sheltered anchorage on the island further decided the spread on the territory. (Fig. 11)

Indeed, as the economy was developed, these defenses were further strengthened by the construction of a battery on Munden's Point, the northern arm of the James Town bay, as well as in every potential landing points and valleys. From Lemon Valley to Sandy Bay and Properous Bay, the island became jealously protected. Only Jamestown remains as landing point and trade market.

LAND EXPLOITATION

This way, the establishment of the agriculture became the economical and geographical core of the island. However, with the withdrawal of the Liberated African Station in 1874 and the economic difficulties, the British company started the New Zealand Flax exploitation, current major alien specie, abandoning the previous imported agriculture, the cotton.

Alarm Forest, Blue Hill, Longwood and the high parts of the island were colonized. Indeed, the steep flax fields and the management of livestock triggered the management of the soil.

As supply territory for Jamestown, but also as prison for Napoleon in Longwood, the central region of Saint Helena is the result of successive appropriation by the land owners. The latter, as demonstration of the power over the land built Plantation Houses, and main farms. (Fig. 12) The relation between a punctual building and large areas are specific of the 19th and 20th century agriculture rise, as we find example in every major colonies and slaves trade locations. (Fig. 13)

Indeed, during the peak of flax, this governance from the only three families were covering over 3,000 acres of land and the industry directly employed more than 350 people. Along the same use, the introduction of the Boer Prisoners in Blue Hill district and the other on Deadwood Plain reinforced the flax industry.

Thus, the presence of the railways in Rupert's Bay, settlement of the liberated slaves, reveals the daily transport of goods from the inland to the shore. Always along the logic from the plains to the valley and then, the exportation by the East India Company.

Through these multiples entities, the island is organized along a clear dichotomy between a colonial activity, and its satellites. The green and exploitable area contains the historical and currently preserved Georgian architecture while the eroded belt is the location of inhabitants houses, warehouses and trade related constructions.

With the successive fail and departure of the major economical activities, the buildings, often under exploited and abandoned, emerged as traces of a colonial heritage. And along it, the desire for tourism activity rose. Undoubtedly, the development of the Airport in the East of the island, financed by British Overseas Territories, becomes the expression of this potential tourism economy.

CONSERVATION

The heritage of the 19th and 20th century is spread through the valleys and the fields of Saint Helena.
Indeed, the cultural expression resulting of the East India Company activities is a key potential to attract visitors. Tours are already organized with the exhibition of Napoleon's House, trading houses and many of the isolated forts around the coastline.

The extensive shift from manufactures economy to tourism economy created different reaction toward the same trend : the conservation of the land.

Protected building and gardens in Longwood and Jamestown with the Nature Conservation Areas of endemic species and native flora create a shift in the island land use. The exploited territory by a empire colonial power let the place to the establishment of an extensive protection areas network.

HERITAGE IMPACT

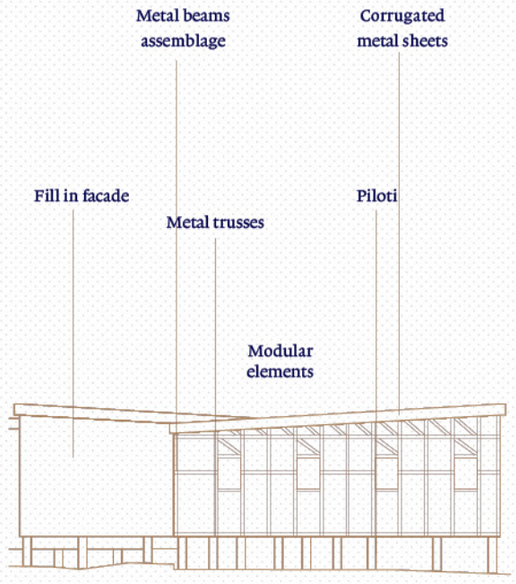
The airport's presence on the island tend to bring major implications for Saint Helena's heritage resource. The expected population, reaching 58000 by 2033 represent a considerable investment. 1 However, located in the Nature Reserve of Prosperous Bay, the infrastructure deeply shaped the landscape. (Fig. 14)

The scarcity of resources in Saint Helena territory made the government set a contract with South African, Basil Read company. 2 By doing so, the importation of 100 000t of goods, 22 millions liters of diesel, 25 000t of cement, and 550t of explosives was necessary to the construction of such an highly generic program. (Fig. 16)

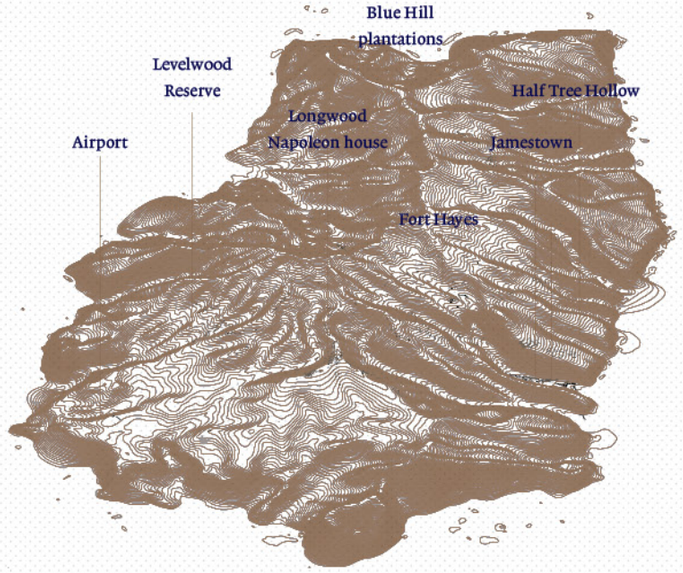
As result, in the name of the heritage and endemic fauna observation, the introduction of the airport has an important impact on the protected landscape.

Fig. 13 : Saint Helena Airport Prosperous Bay

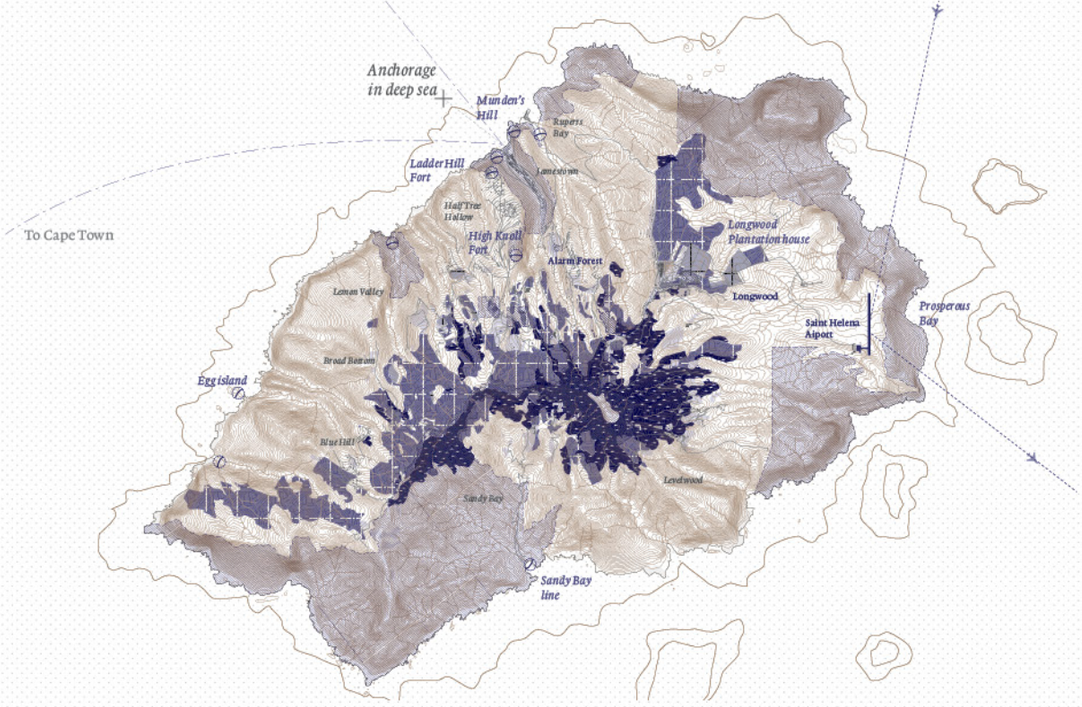
Fig. 14 : Saint Helena Airport material importation



Diag. 3 : Prefabricated house around the Airport



Diag. 4 : Population repartition in districts

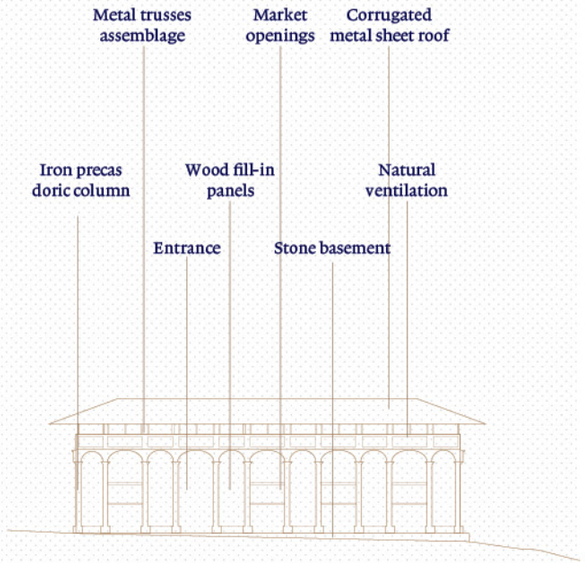


Diag. 5 : Agriculture landscape

Fig. 15 : The center of Jamestown

Fig. 16 : Main Street houses in Jamestown

Fig. 17 : Market Square, Jamestown



Diag. 6 : Prefabricated iron market

GEORGIAN ARCHITECTURE

SCENIC ENTRANCE

There are two main groups of historic fabric on St Helena, the military infrastructures and the civilian. It should be recognized that evidence from both, may be found over most of the island.

A full range of 18th century English colonial plantation and urban Georgian buildings feature on the island. The capital, Jamestown, has the atmosphere of a small English country village. It has a tightly packed row of colorfully painted houses on both sides of Grand Parade and Main Street.(Fig. 15)

The architectural style of Saint Helena even more than in the three other islands, imported by the first english settlers, is a superimposition of different culture and influences. Jamestown is both a trading outpost, but also the scene of representation of the colonial society.

The Main Street shows the continuity of facade well painted and clean. The succession of doors pediments, prefabricated verandas, elevated entrances with decorated handrails, shows the scenic aesthetic of the settlement. (Fig 16)

In Saint Helena, these characteristics are as many demonstrations of power similar to the country houses in Blue Hill and other agriculture areas. Indeed, this repetition of style is mostly expressed through the country houses.

COUNTRY HOUSES

The culture of Saint Helena was developed through the exploitation of the land while the Georgian style was flourishing.
The similarity of this architecture is certain as we find the same characteristic between Jamestown and the spread land owners houses.

Indeed, the Georgian style, identified by its symmetrical composition and formal, classical details, was the most prevalent style in the English colonies throughout the 18th century. Starting from the cotton colonies in America, it was spread via British architectural buildings in the 18th century.
The emergence of the cotton industry in Saint Helena is also one of the generic attitude of the British Empire and its expansion.

The Georgian house is a stone or brick two-story building with a side-gabled roof and a symmetrical arrangement of windows and doors on the front facade. As we notice in the Jamestown central area with some variations, the style also commonly features a pedimented or crowned front entrance with flanking pilasters.

The style we can observe in Saint Helena territory reflects a period of colonial growth and prosperity and a desire for more formally designed buildings. However, the introduction of a standardized style in the colonial architecture comes with the first models of prefabrication. (Fig. 17)

Indeed, the Market square is one of the earliest piece of iron prefabrication in the Saint Helena island.

GENERIC HERITAGE

Imported building from the British company Gwynne & Co is a culturally significant trace of the agricultural trade since the middle of the 19th century.

Despite its nature specific to the site, with a strange oriental aesthetic, the iron prefabricated structure show the generic condition of imported architecture.(Diag. 3)

Supported by iron precast Doric columns, the metal trusses make a strong echo to the verandas structures, as simple trusses assemblages. At that time, no production of iron was part of the island industry, so the importation was already an import part of the process of construction. The corrugated metal sheet roof also reveals a certain continuity of the roofing materials of Saint Helena settlements.

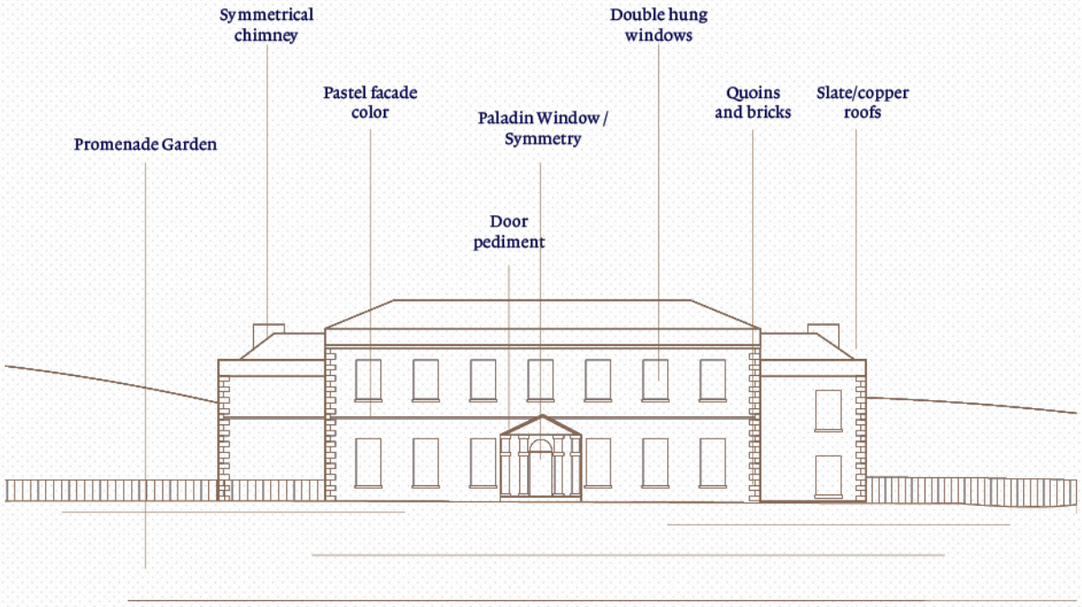
In term of size than in term of constructive logic, another example of standardized building comes with the implantation of the new Saint Helena Airport.

GENERIC PRODUCTION

Even more than the market building, the construction of the airport is the theater of highly artificial process. Indeed, the temporary settlement for the 300 foreigners involved in the project is another expression of logistic.

Metal beams and quick assemblage remain the fundamental quality of imported construction where the distance from the resource production becomes a major problem.

By doing so, it becomes less a style importation like the colonial influences than generic containers as we can observe in isolated territories. And in Saint Helena, we observe a shift from a relation of dominance on a territory to a non site specific architecture, autonomous from the location.



Diag. 7 : Plantation and House Georgian style

Fig. 15 : Plantation House

Employment : Basil Read - 210 & Saints - 364 (9% of the Island's population

Prosperous Bay supply : Dry Gut artificial hill with 7.6 million m3 of mountain by 265 500 truckloads. 16 million tons of rock

Process : 266 million of water used in process & 12% of the Central Basin Nature Reserve disturbed.

Runway paved length : 1950m

Plane : Boeing 737-80

Airport Terminal

Access control building

Dry Gut ground level : + 116m

Rupert's pre-cast yard construction : concrete blocks

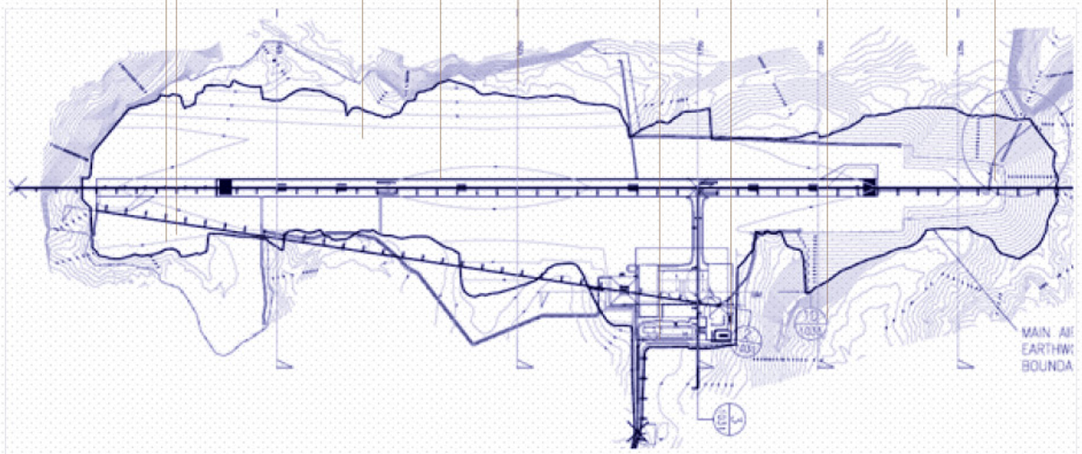
Supply : 50 000t cargo shipping with 120 items, construction machinery, cement, steel, explosives and other construction materials

Access road : 14km to Rupert's Wharf.

Transport on an approximatively distance of 531 000 km for 4.3 million m3 of materials

Airport Fuel facility : 16 million m3 of fuel includes 4 Gasoil Tanks, 2 Aviation Fuel Tanks, 2 Gasoline Tanks.

Tank capacity of 975,000 litres.



Diag. 8 : Basil Read airport construction project

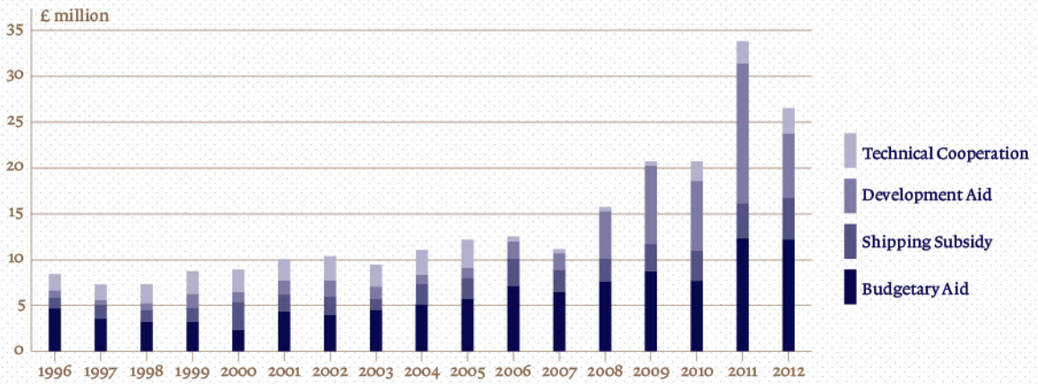
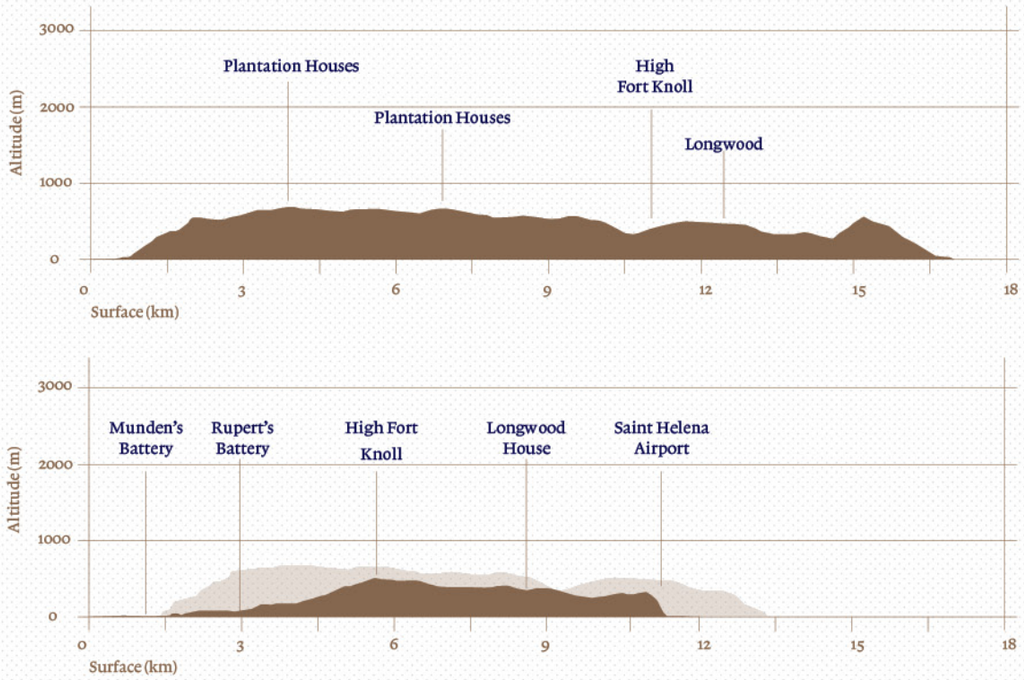


Table : UK Aid to St Helena from 1996 to 2012



◿ Diag. 9 : Sections - NE/SO & NO/SE

"It's now largely a subsidy economy. Many of the 'Saints', as the islanders refer to themselves, work for the government, or in government-owned businesses."

Flax exploitation
Pastures
Arable Land
Housegardens
Historic areas Preservation
Old fortifications
Settlement
Local places
Colonial entities
Weather Station
Bathymetry
Watersheds
Topography
Routes
Air traffic

Martin Wright, *Saint Helena: Martin Wright Takes a royal mail ship to one of the world's remotest inhabited island,2001.*

◿ Saint Helena Map - *Colonial Expressions* 1/110'000

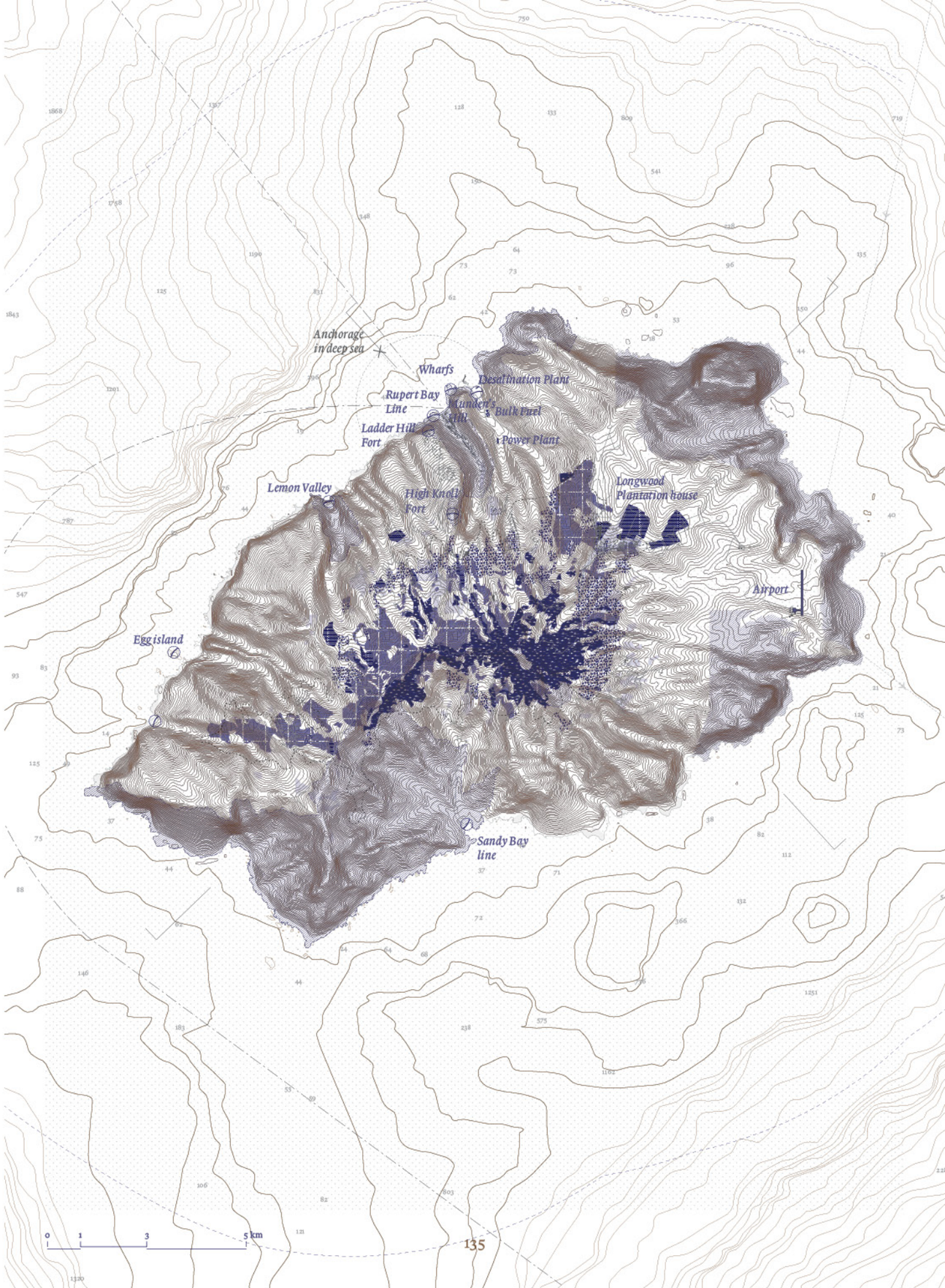
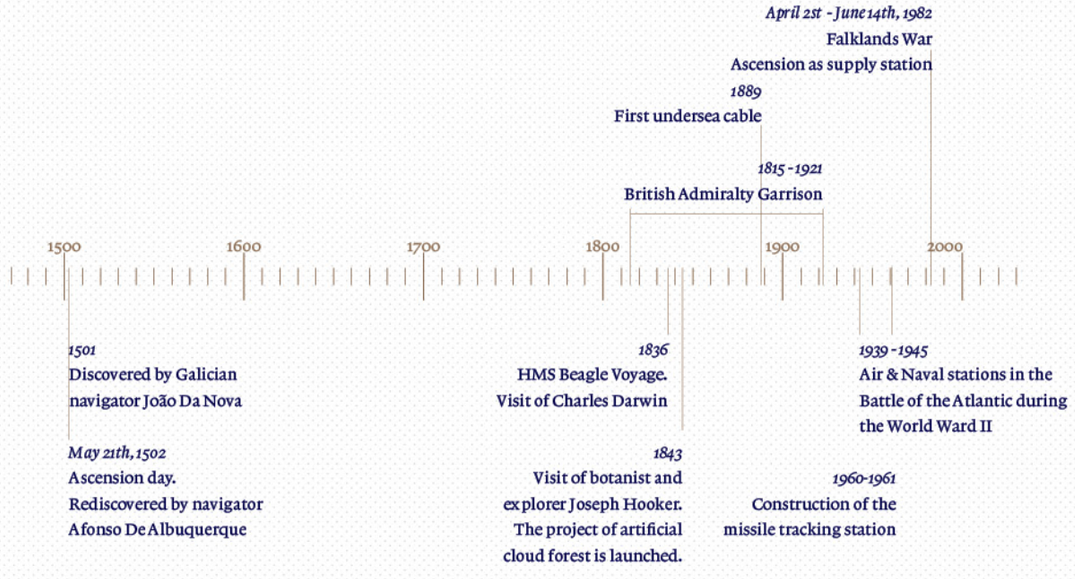


Fig. 16 : Excavator buckets gather at the edge of the airport site. Austin Andrews, *Frontier Empire I: Saint Helena.* 2014

3.4 - Ascension



HER MAJESTY'S SHIP

Somewhere between Brazil and Angola, at 1'300 km Northwest of Saint-Helena lies 88 km² of volcanic land. Discovered a first time in 1501, the island wasn't on record until its rediscovery two years later, the May 21th, 1502, by Afonso De Albuquerque. He named the island after the day on which it was rediscovered, ascension day.
Just as Saint Helena, Tristan Da Cunha and Falkland islands, there is no indigenous population and the island remained inhabited until 1815 when Napoleon was incarcerated in Saint-Helena. Indeed, a small British naval garrison was installed on Ascension in order to deny strategic access to rescue the French emperor from his exile.
However, before the British garrison, Ascension island was probably used as open prison for criminal mariners. Only one case is documented telling the story of a Dutch ship's officer, Leendert Hasenbosch, set ashore at Clarence Bay as a punishment for crime in May 1725.

In 1815, Ascension was claimed island of his Britannic majesty King George III by Cruizer class brig-sloops *Zenobia* and *Peruvian*.

From this period, the location of the island made it an important stopping-point for ships and communications. For administrative purposes it was treated as a vessel, HMS Ascension, "sloop of war of the smaller class". Subsequently it provided succor to ships, both naval and merchant, that found themselves in distress. The island became a stone frigate named HMS Ascension, HMS meaning *Her Majesty's Ship*.

The royal Navy used for example the island as supply station essentially for the West Africa Squadron patrolling around the coast of West Africa to work against the slave trade passing the busy routes between Africa and Americas.

ARTIFICIALITY

In 1836, during the second voyage (survey expedition) of HMS Beagle, on its journey back to Grand Britain, the famous naturalist Charles Darwin visited Ascension. He described this strange new world as an arid treeless place who is nothing more than a barren cinder. In his diary, Darwin noted that the springs were carefully managed *"so that a single drop of water may not be lost: indeed the whole island may be compared to a huge ship kept in first-rate order."*

The experimentation was a success, acres of tree grew over the year, soil became more fertile. An ecosystem was created remaining the world's largest artificial cloud forest. An oasis created from a volcanic desert.

Far from taking this as a support to develop, the desert landscape, or oasis depending how people think, the island attracted an intense artificiality. Thus, the NASA developed its Moon Base to test the reaction of astronauts in desert and lunar landscapes as "If you can't go to the Moon, the next best place is Ascension Island!".

MILITARY ISLAND & ANTENNAS

In Atlas of Remote Islands Judith Schalansky starts to describe Ascension island as a military place looking toward the sky : *"everything is reaching for the sky : the forty-four sleeping craters in the rust-red cone of ash, the antennae several meters long and the spreading satellite dishes. The are eavesdropping on the continents, listening to the world, to the universe, to the infinity of outer space."*

Indeed, Ascension island was what we can called a communication node. During the World War II, the US army Task Force built an airbase with the agreement of the United Kingdom Royal Air Force.

From 1943, the airstrip, called *Wideawake*, was used as an essential stop to land and refuel for American aircraft crossing the Atlantic Ocean on the route to Europe and Africa.

Following this logic, a space shuttle was installed during the space race of the cold war, as well as the island became part of the eastern range.
NASA established a tracking station for intercontinental missiles on the island in 1967 and in 1982 while the island's airfield was critical for the Royal Air Force during the Falklands War.

Still now, the island provide a refueling stop for the regular air-link between UK and Falkland island. It's actually one the two way to go to Falkland.

Today, Ascension is the location of an important industry of communication, surveillance and national security to the British and US militarism. The island hosts many communications relay, as one of five ground antennas that assist Global Positioning System (GPS) like the Island of Diego Garcia in the Indian Ocean. NASA operates a telescope for tracking orbital debris as well as ESA (European Space Agency). BBC World Service installed the Atlantic relay Station there.

NO RIGHT OF ABODE

The intensive use of the island as supply station, temporary host of soldiers and military installations made this strategic position without "right of adobe". No population are then allowed to stay on this rock island without a contract with Governmental programs.

Through this perspective, only a few companies, the British government and the military bases give access to an employment. Despite a lot of protestations from the British inhabitants families who live since the first establishment of the colony.

The permission to visit the requested place and it's only deliver is by the island's administration which is under the direction of Saint Helena's governor, directly designated from British Government.
Indeed, back in the 80s, the contracts where "singles only". Only network administrative station who was doing this.

The successive departure of the main network installations and wars, the Ascension Island' infrastructures and storages created the expropriation of hundreds of people, without the possibility of staying. 2

From vessels to planes, the development of the island focus on one thing, which is the technological support of transports. The island then became a pivot to control and reach further territories.

The island has played a strategic military role, without being itself an interest for resources or settlement. Still now, the location of this island is used for the same purpose while protestations rise from time to time through the small own Ascension Island Parliament, with only power to propose to military administrations.

As a "working" island with the close Saints and worldwide engineers, the landscape host colonial programs and remains along the same logic since its establishment.

Fig. 17 : Fort Bedford

Fig. 18 : Climb to Dampier wellspring on Ascension Island. Louis-Auguste de Sainson, 19th century

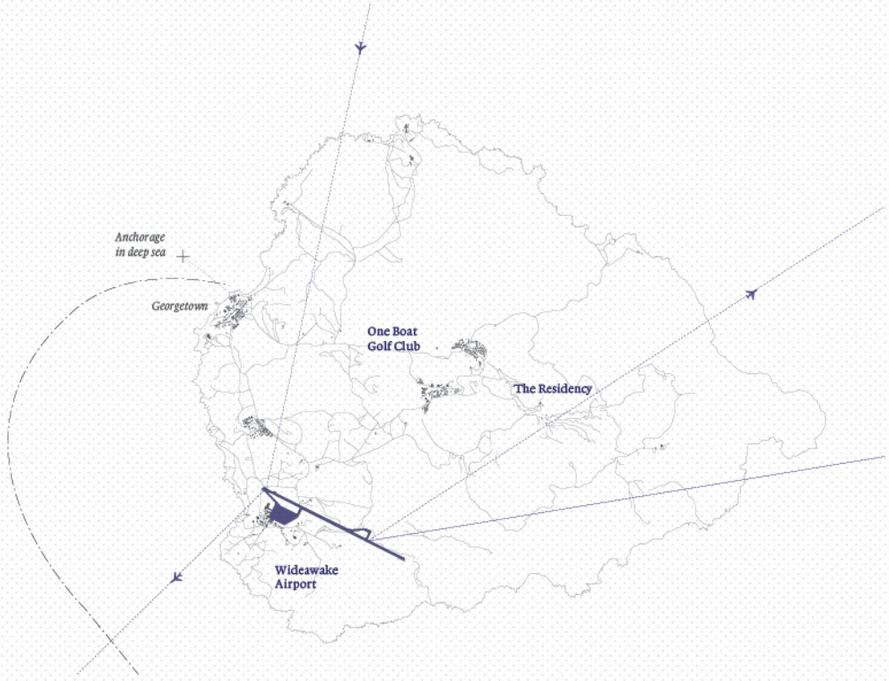
Fig. 19 : Ascension Island Celebration

Fig. 20 : The docks at Georgetown

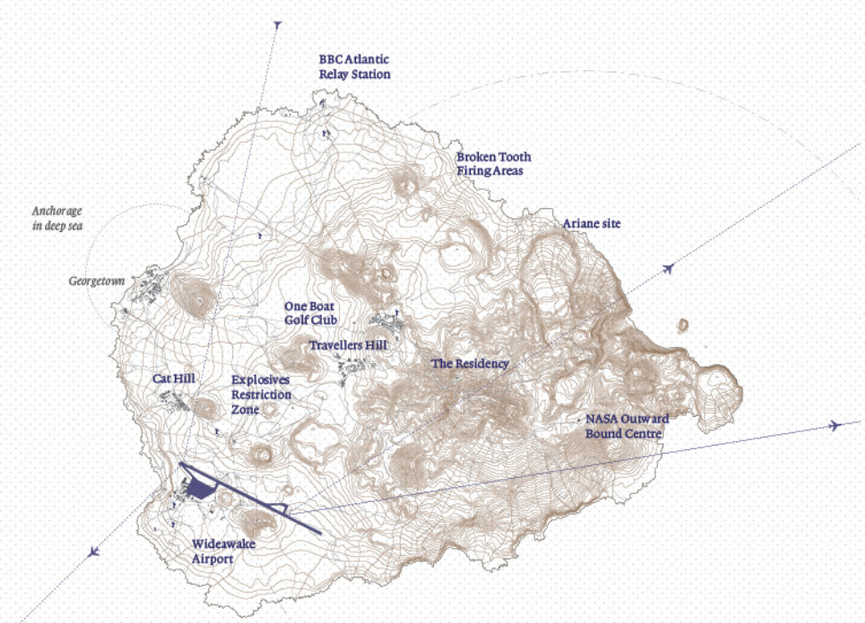
Fig. 21 : Plane passing through Ascension Airfield

"It's like being on an oil rig now. We have no rights. We are just a workforce, even though many people have never lived anywhere else. Some families have been here for four generations".

Fred Pearce, in The Guardian's 11th September 2003 article : *US and UK accused of 'squeezing life out of' Ascension Island.* Interview of Cedric Henry.



Diag. 10 : Accesses and settlement repartition



Diag. 11 : Topography and military bases

Fig. 22 : Government building and Union Jack flag Austin Andrews, Frontier Empire II: Ascension Island, 2014.

Fig. 23 : Series of houses Jon Tonks, Empire, 2014

MILITARY BASE

RESTRICTED ENVIRONMENT

Historically, Ascension Island always been the expression of an highly artificiality. As a so-called stone frigate, HMS Ascension become quickly the location of military and governmental associated activities.
By being so, the settlement, starting with surveillance garrison, continued until now to fulfill this role. It is the place of two of the main bases in South Atlantic Ocean, Wideawake airport as pivot platform of military operations. And as a purpose to remind the colonial program, the Union Jack flag remains above Georgetown, close to the Government Parliament.

The superimposition of the deserted landscape around the Green Mountain and the controlled military areas then creates a strange appropriation. The panel outside Georgetown describes it well with "*No Authorized vehicles are allowed beyond this point by order of the administrator*". (Fig. 6) The military installations, spread on the territory, in Cat Hill, Travelers' Hill, but also dug and anchored in the many cinder cones of the volcanic island, reveals a specific urbanism. Indeed, fences, and restricted areas allow few location for the workers settlements.

A clear example of it lies in the Broken Tooth Firing Area, completely empty northern location, with 12% of the territory contained in it. In total, a bit more than 30% of the Ascension Island landscape is currently being controlled by autonomous entities, out of the range of use of the inhabitants.

STANDARDIZATION

The Georgetown and Two Boats villages clearly show the radical appropriation of Ascension Island.
The succession of the houses creates a generic patterns and show the villages as isolated pieces repeated through the territory. The roads in between, to go from the coast to the inland draw perpendicular lines in the sand. Linear communication roads stretch in the same logic through territory, indifferent to the topography or natural conditions.

The Green mountain, product of the first "Terra-forming" operation by Charles Darwin and Hooke, participate also in this ambiguous landscape. As Simon Norfolk, photography says, "*It's not a wilderness forest, then, but a feral garden run riot on the slopes of a remote, militarized island outpost*". Indeed, most of the territory appearance started from a military production and its resulting productions.
Its resident population – most of them originally from St Helena, another British South Atlantic island – has fallen by a quarter in a decade to less than 800, as the companies that now run most military and civilian services replace settled family communities with contract workers. In this island, the absence of the right of adobe and the multitudes of non authorized areas don't let any chances to appropriate and create of proper sens of place. (Diag. 12)

PHYSICAL TELECOMMUNICATIONS

The physical impact of such installations are not to deny. Indeed, the radars, antennas (along with the ECHELON worldwide surveillance system) and satellites observations networks create a dominant infrastructural landscape on the coastline belt. (Fig. 24)

The topography then becomes the expression of these programs, with, alternating between old fortifications, protected hills perimeters and in the southern part, the airport. It is indeed a strange relation between the non physical purpose of the antennas and their physical anchorage. (Fig. 25).
Moreover, one of the main intriguing location in Ascension island is the NASA Moon Base in the East part of the land. In 1967, the station itself was the host of 97 astronauts, technicians and engineers during 25years. Both supporting the RAF and the US in its military operations, the main purpose was the preparation of the lunar Apollo launch. (Fig. 26) Currently, the base lies as a trace of the interest of such unappropriated place to found a settlement. Indeed, *"against a background of lifeless, red, volcanic ash is unearthly – more akin to a base on Mars*".

INFRASTRUCTURAL LANDSCAPE

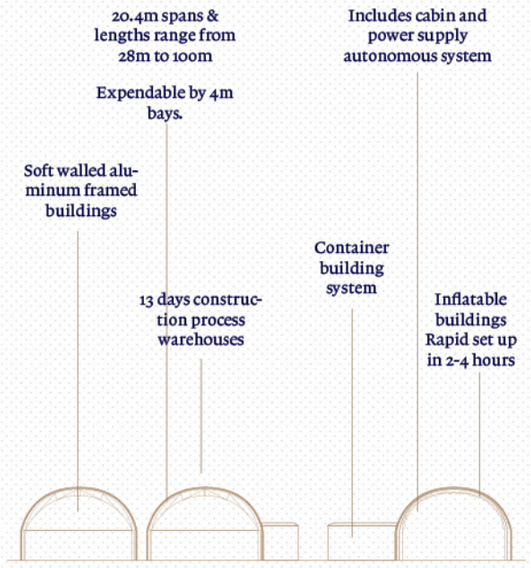
This outpost that is Ascension Island express well in this sense the how generic attitude of military bases and modern infrastructures. With the airport as major aesthetic of this gesture.
Located in the Southern part of the island, the airfield hold its name from the swarming Wideawake frigate birds that used to breed on site at the arrival of the garrison. After an intensive exploitation of the guano as exported fertilizer, they cleaned and flattened the site in order to expand the occupied territory. (Diag. 14)

Despite the importance of the ocean in the constitution of ascension island life, the logic of importation increased since then. Indeed, it is here cheaper to import all the goods than exploiting this desert territory.
As a confirmation of this generic logic, the desalination and pumping power plant made disappear what shaped the ecosystem at the first place.

Fig. 27 : Wideawake Airfield, Ascension Island

Fig. 28 : Ascension auxiliary air base

Fig. 29 : Bob Shackleton, *Avro Vulcan Cold War Archive*, 2008.



Diag. 15 : Buildings and warehouses typologies in US Base.

AIRPORT AND WATER SUPPLY

NETWORKS HUB

"Although only 64 km square and mostly ash and lava fields, the island is festooned with more than 100 antenna relays. These are bizarre; like some kind of aerial spaghetti. Some are wire versions of the Millennium Dome; some like large skeletal bomber aircraft raised on tall pylons; and some are delicate cones and spirals."

Simon Norfolk in *War/photography: an interview with Simon Norfolk* for BLDGBLOG.

Ascension island, for an isolated territory in the middle of Atlantic Ocean, is the center of an intensive activity. From telecommunications to air traffic, a alien artificial landscape comes out from this specific use of the land.

The same logic than the antennas can also be followed within the military bases and especially in the Wideawake Airport. Then, the line of 3054 meters in the desolated surrounding marks a strong gesture and aesthetic. (Fig. 27)

SEMI PERMANENT ARCHITECTURE

As a cut in the ground, surrounded by restricted access hills, the airport is the anchorage for the US base.

The buildings around the runaway are many parallel geometric constructions. From the imported containers (Fig. 28) to the rubber round shapes buildings, a generic and imported construction emerges.

Indeed, the hangars, barracks and administrative buildings are mostly identical, offering the maximum ratio of use and sheltered surface.
They are mobile facilities which are applied at the fields condition of lacking regular electricity supply and necessary logistics support. Then, it provides a undifferentiated solution to different conditions.

The whole system is self supporting, autonomous from its environment. Through the use of lightweight structure and larges spans, it suits any changes of use. Transported in containers, the building is then inflatable or assembled quickly. (Fig. 28)

Along the same logic, the soft walled aluminum framed buildings don't need any skills, neither from the site, neither in general with a 13 days construction assemblage process of the buildings. (Diag. 15)

Again, the look at history shows differences in the design of military infrastructures. The presence of the spread old fortifications on strategic locations were, in a way, in situ constructions. It used local materials specific to the place, the red soft stone common to the 3 South Atlantic island. On the opposite, the introduction of materials, goods disconnect even more the place from its use.

The Wideawake airfield shows Ascension Island not anymore as a vestige of the British Empire, but as a military persistence on a place. In 2013, more than 100 aircraft passed through on security duties during Barack Obama's trip to Africa and even more with the pressure in Falkland islands.
The location become fundamental while the physical characteristics interests decrease.

However, the proximity between such area and the Wideawake Fairs Nature Conservation Area remind the confrontations of the two entity of the island. Then, exploitation and subsistence tend to be under the same control of the land.

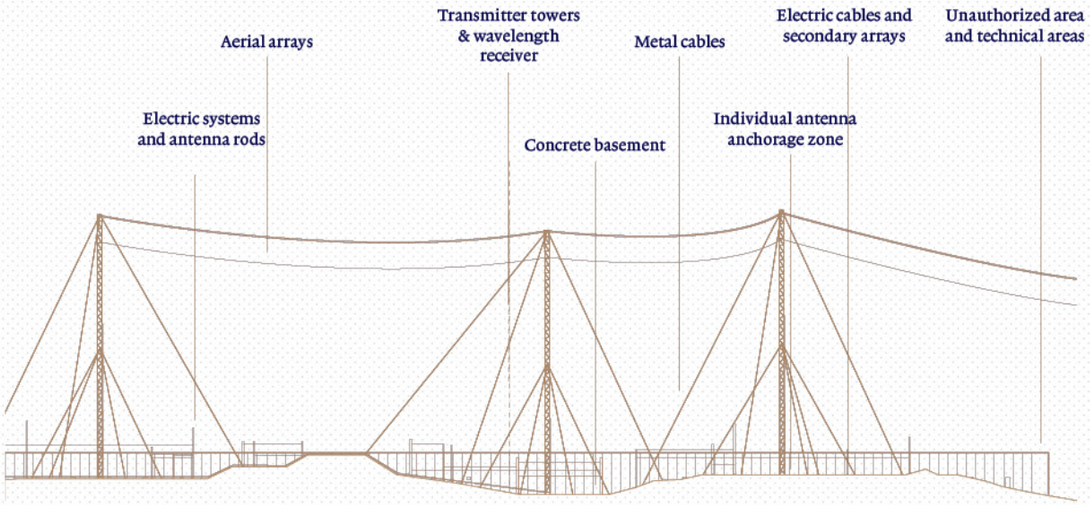
AUTONOMY

In order to minimize the construction and operating costs, as well as potential interferences to existing and future facilities, each constructions is built separated from the others.

Indeed, the search of water supply and autonomy produced an urbanism in pieces and fragments. At the start along the Green Mountain road, then spread on the different locations.

By doing so, the Apollo Moon Base was then consolidated into a single complex at a desolate area on the south-east side of the island so-called Devil's Ashpit. Indeed, this strategy is widely applied to the architecture and territorial thinking.
It produced a "*full service station, with operations conducted at a brand new 1,330-square meters air conditioned operations building. In addition of it, a 185-square meter storage building and a power plant*" were installed.

The desalination station is not an exception of this, neither the RAF military base or any restricted areas. Following an efficiency and a privacy in the military activities, the clusters of mass produced and imported building became the expression of the colonial in Ascension Island.



Diag. 16 : Antenna restricted area system

Fig. 30 : The bewildering and slightly sinister antenna array

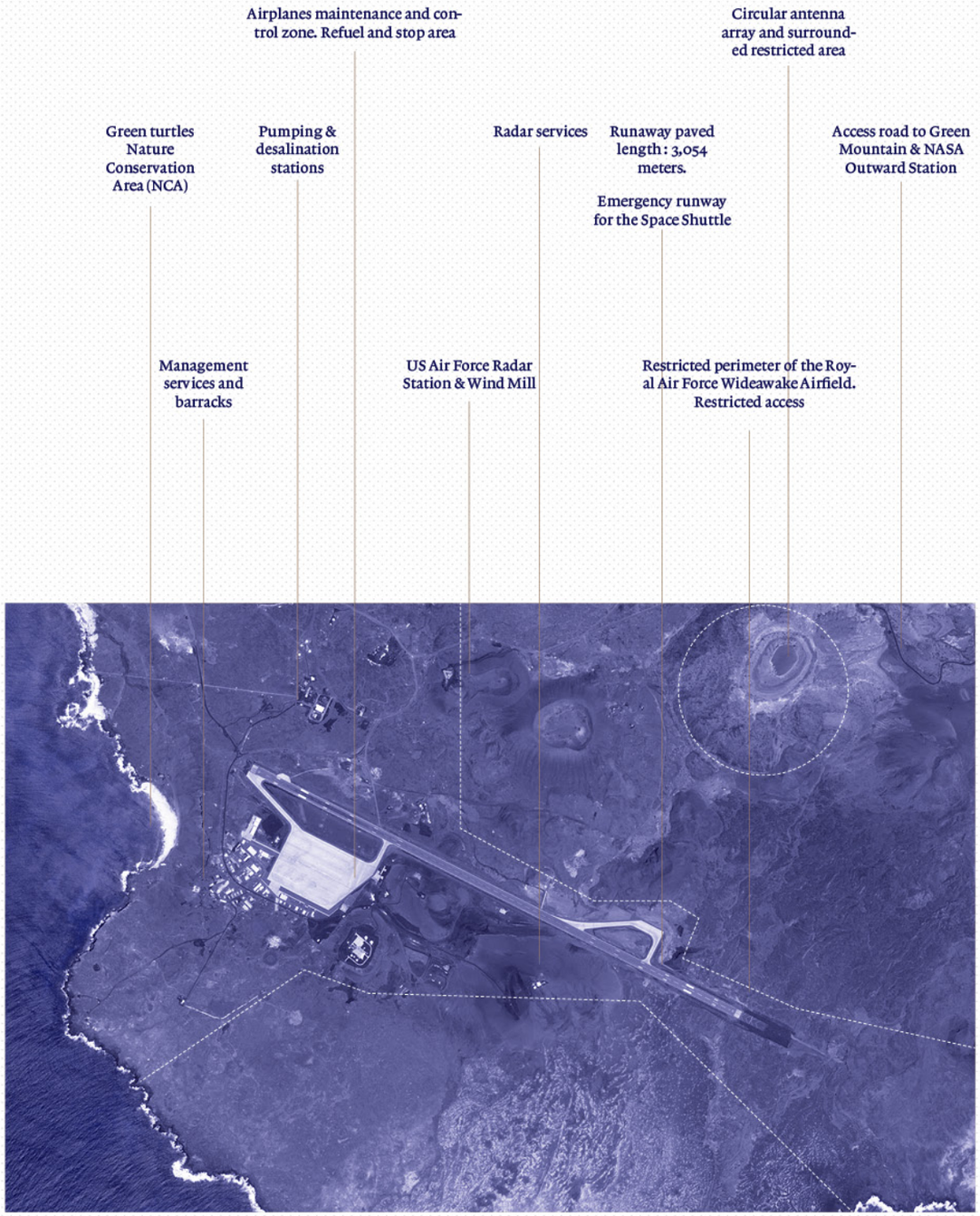
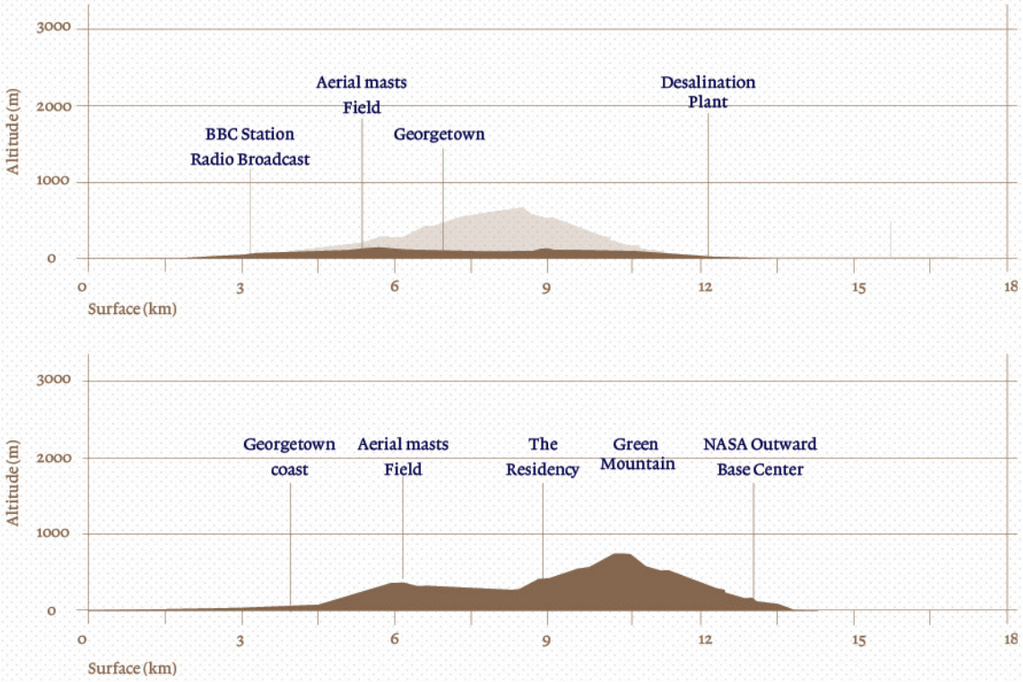


Fig. 31 : Ascension Auxiliary Airfield, Ascension Island. Mishka Henner, 2010



Diag. 9 : Sections - NE/SO & NO/SE

"Everything is reaching for the sky, the forty-four craters in the rust-red cone of ash, the antennae several meters long and the spreading satellite dishes. They are eavesdropping on the continents, listening to the world, to the universe, to the infinity of outer space ."

Schalansky Judit, 2010, *Atlas of Remote Islands: Fifty Islands I Have Never Set Foot on and Never Will*

Aerial masts antennas
Settlements
Desalination power plant
Bulk tank Fuel supply
Restricted areas
Radar stations
Industrial buildings
Airfield
Maritime routes
Air traffic
Roads

Ascension Map - *Colonial Expressions*
1/110'000

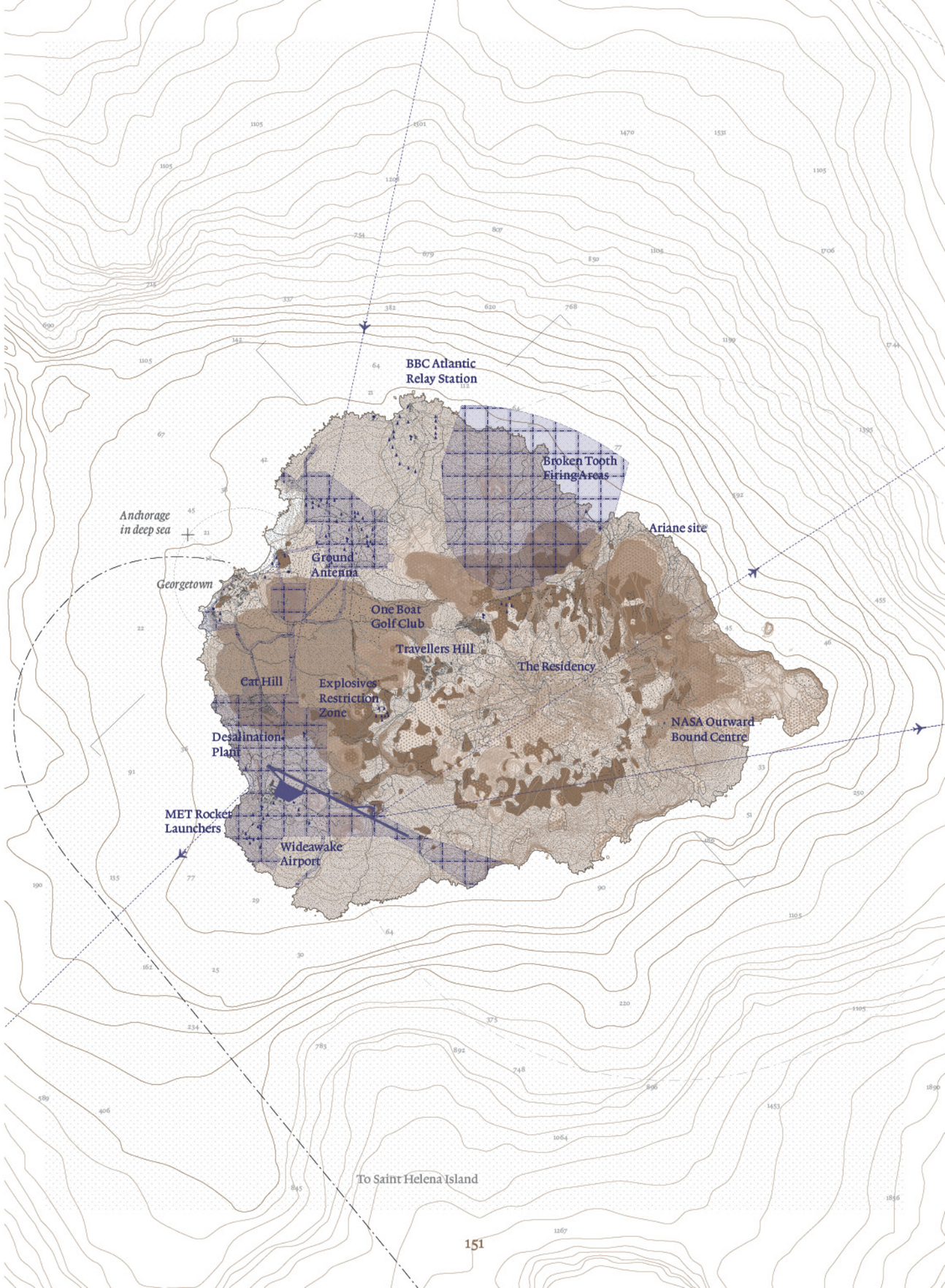
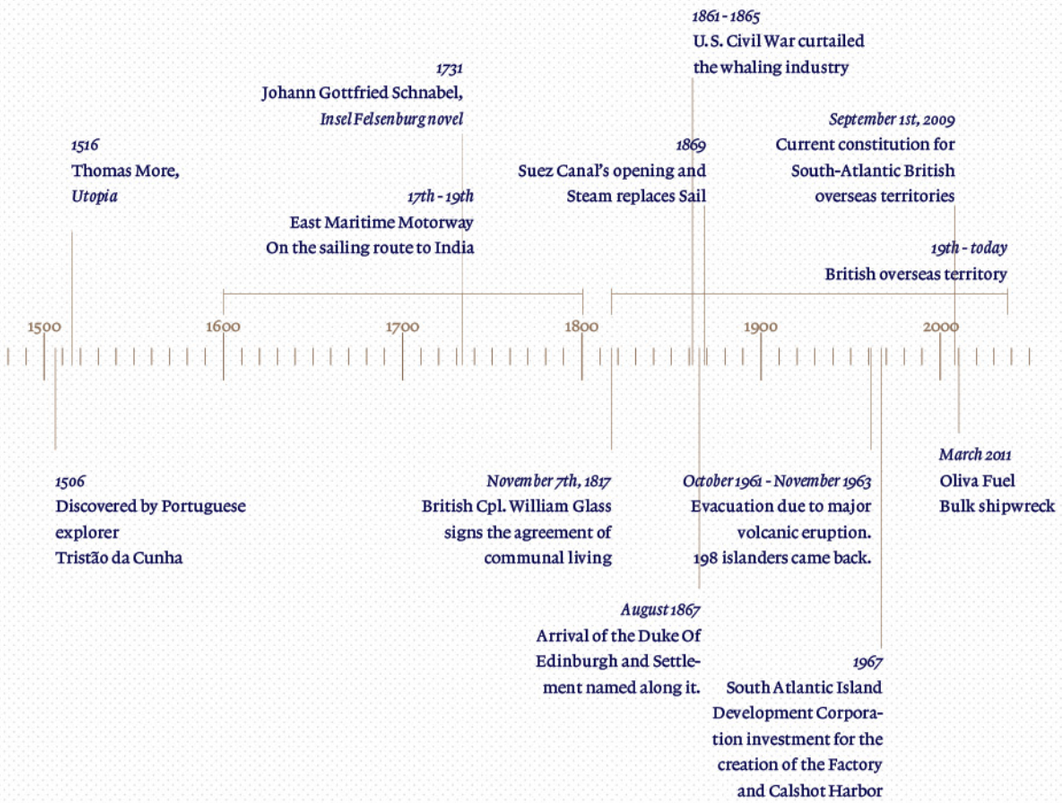


Fig. 16 : Jason Larkin, *Ascension : An useless island*, 2014

3.5 - Tristan Da Cunha



ICONIC VOLCANO

It's the remotest among the remote islands, and proudly exhibit it's title of the "Remotest inhabited island in the world". Indeed, the island host the most remote permanent settlement on earth, lying 2'000 km from Saint Helena, the nearest inhabited land, and 2'400 km from the nearest continental settlement, Cap of Good Hope in South-Africa.
From the top of the so-called Queen Mary's Peak, of the name of the HM Queen of United Kingdom, one can look at the islands composing the Tristan Da Cunha. The small inhabited *Nightingale Islands*, and 2 Wildlife reserve of *Inaccessible* and *Gough* Islands complete the archipelago. The 4 islands cover a total of 207 km².

A PROJECT OF COMMUNAL LIVING

The archipelago was used for centuries as water supply stop on the east maritime motorway. However, the islands were ignored as possible settlement due to rugged landscape, absence of natural port, harsh climatic conditions and lack of agricultural land. The description is, in a way, comparable to Ascension island with the remoteness acting as first sight as not suitable to settle.

However, the first inhabitant was an American called Jonathan Lambert who renamed Tristan Da Cunha : *Island of refreshment*.
He lived there with two other sailor starting from 1810 and died two years later during a fishing accident due to the many storms which occur in the region.

The first settlement, in the same logic than Ascension Island and Saint Helena. When Napoleon was made prisoner on Saint-Helena in 1815, King George III, in fear of a potential escape decided to take possession of the island and sent a British military garrison to prevent the French military from using the island as a rescue base.

Back then, while the marines were leaving the island, the Scottish Corporal William Glass and his family decided to stay with two stone masons Samuel Burnell and John Nankivel and began a project of community.

They establish a remarkable constitution of communal living which they called "the Firm".

This voluntary agreement signed in November, 17th of 1817 proposed *an equal shares of stock and stores, equally divided profit with equal shares in paying for purchases, and no one superior over another*. The settlement was based on a communist organization and follows Christian values. By doing so, William Glass became the marvelous patriarch overseeing everything and developing the society according to such principles.

Indeed, the island's settlement appears as the curious reflection of the community described in Utopia by Thomas Moore and even more in the Johann Gottfried Schnabel's novel *Insel Felsenburg*. This most famous German book wrote in 1731 tell the story of an imaginary remote island located the middle of the South-Atlantic ocean. Indeed, Utopian stories are usually based on island as strange and unreachable societies.

THE DESOLATION ISLAND

The small community grew slowly related to the number of Ships that shipwrecked on the island's rugged coasts. In 1827, the Tristan's tiny population included 5 lonely bachelors. A uncommon long-distance date-blind arrangement was made with 5 voluntaries women from Saint-Helena. They persuade them to sail at Tristan Da Cunha and marry the five men. Indeed, the extrem remoteness of Tristan da Cunha makes it difficult to reach and so very limited in the interactions to the exterior society.

The 1840s and 1850s were a successful period for the community. Whalers, explorers and merchants set up on Tristan Da Cunha to use it as South-Atlantic base for operation or supply stop.
Indeed, in 1836, the French Captain write about the islands : *"Après avoir été longtemps le partage de quelques anglais obscurs, et avoir eu pour chef un simple soldat d'artillerie (Glass), nous y verrons un jour une administration régulière, et au lieu d'une épaulette en laine, nous y trouverons une excellence à chapeau à plumes et habit brodé"*

At that time, new people came as Rev W Taylor who was the first resident priest and schoolteacher. But the death of the leader William Glass in 1853 was a catalyst of a large exodus. Only 28 people stayed on the island. This reflect the very fragile condition of the remote settlement always depending from inner and outside events. In 1885, fifteen men were missing in lifeboat tragedy. The population was 92 at this time and the tragedy left only four adult men.

Just like Saint Helena, time was difficult when Suez Canal opened in 1869. With the development of the steam boats replacing gradually sailing boats, very few ships made a stop on Tristan Da Cunha.
Nevertheless, in 1892, following here again a storm, an Italian ship ran aground on Tristan Da Cunha after it caught fire. Two of the sailors from the Italian vessel, Andrea Repetto and Gaetano Lavarello of Camogli in Italy remained on the Island and introduced the current family name corresponding, Repetto and Lavarello.

MODERNITY

After years of sporadic exchanges and disasters, a major event appeared which changed the island's relation to world society. In 1961 a major volcanic eruption forced the entire population to leave the island via Cape town with England as final destination.

As the French witter Hervé Bazin wrote in his book, *Les bienheureux de la Désolation*, they were all repatriated in the "mother country" and stayed in the fifty houses of the former Royal Air Force Calshot Camp on Southampton Water. However, after two years within modern society, 198 people came back to Tristan Da Cunha as they couldn't adapt them-self to the western way of life and society rhythm of life.

Then, modernization took place almost instantly along the technologies and mentality changes from their journey in England. The 268 islanders lives of a subsistence life, most "Tristanians" are farmers, but also fishermen or work in the factory exporting rock lobsters that provides 75% of the inner economy. The so-called Factory, main financial provider of the community since 1967, became the essential link to sustain a relation to the exterior world through the Tristan Investment, South African company.
In our current time, the island is both ruled by one administrator, an elected council of 12 people and one elected chief islander.

Despite its remoteness, the islands contains scientific, governmental and economical influences from the mainland society through the contracts and disasters as the Oliva Fuel Bulk shipwreck, and the spread of hydrocarbons on its territory.

Fig. 33 : MS Oliva shipwreck on the shore of Nightingale island

Fig. 34 : The long wait for a ship to escape in the shores of Tristan da Cunha — Augustus Earle, painting, 1824.

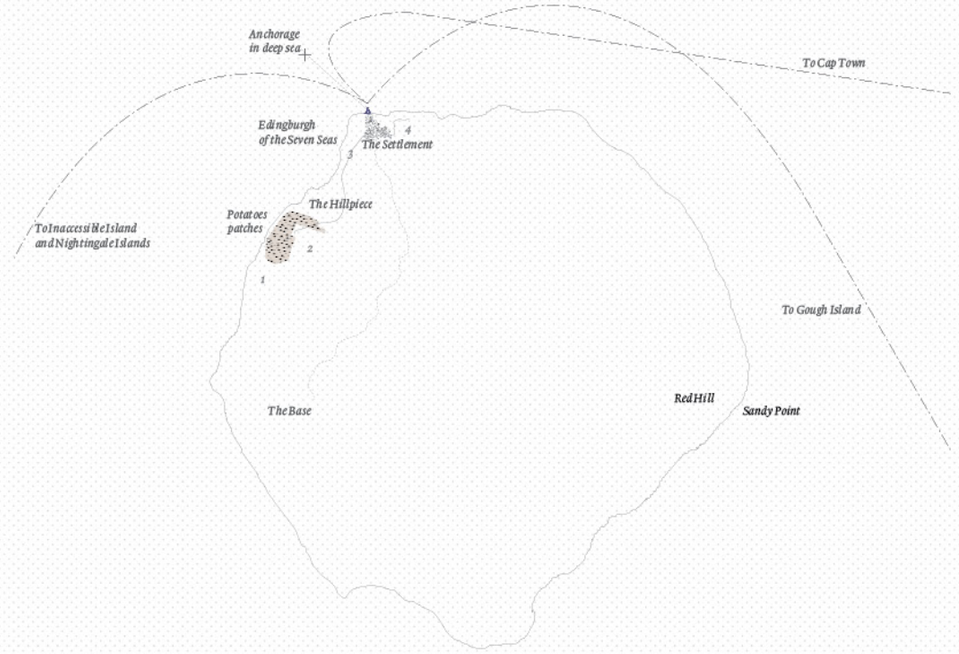
Fig. 35 : Agulhas II scientific vessel' helicopter arriving on shore of Tristan da Cunha.

Fig. 36 : Calshot Harbor raft to transport the imported goods. Jon Tonks, Empire, 2013.

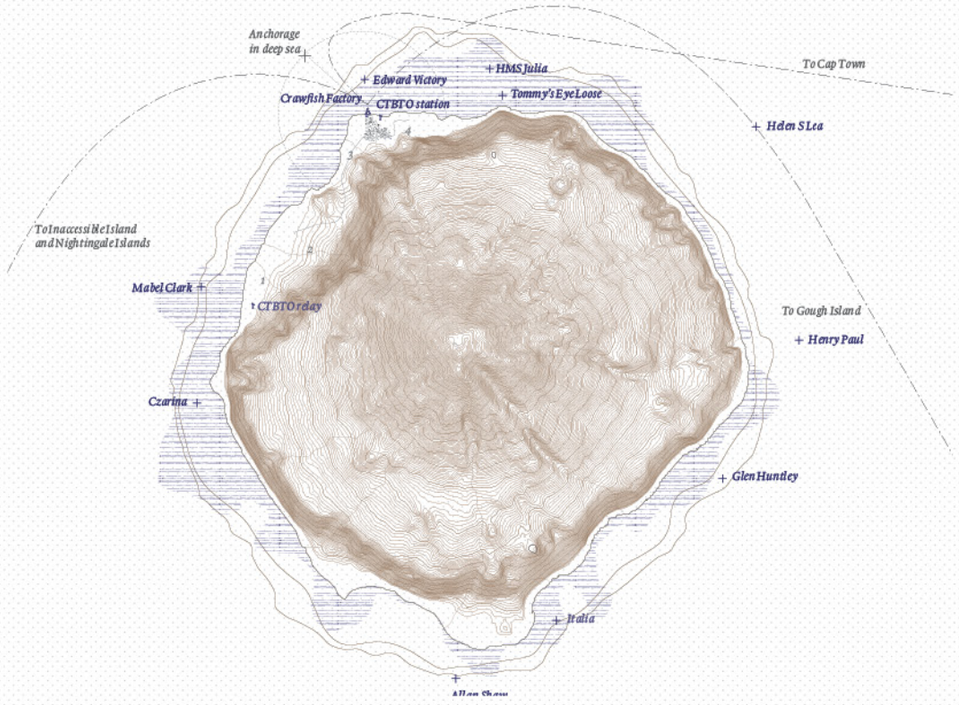
"A commercial farming and fishing venture started with outside capital in 1907 was not a success, largely because of the lack of a harbour."

Barrow, K. M. 1910. Three years in Tristan da Cunha, London,

Crawfish areas
Potatoes Patches
Grazing areas
Industrial buildings
Maritime routes
Roads
Settlement
Grass Regulation zone
CTBTO Station
Harbor
Shipwrecks
Hiking trails



Diag. 18 : Maritime exchanges



Diag. 19 : Halieutic resources exploitation

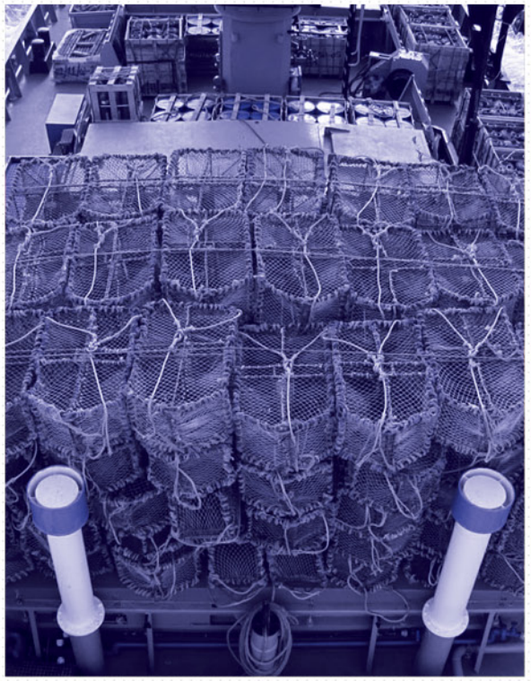


Fig. 37 : Journey to Tristan Da Cunha, Jon Tonks, Empire, 2013

Fig. 38 : The Gas bottle Farm

Fig. 39 : View of the CTBTO station

FISHING & SCIENCE

CRAYFISH TRADE

The subsistence for the Tristanians lies in the exploitation of their territory. Historically with longboats, they used to fish in the direct surrounding waters of the island. However, the introduction of the Factory through the royalty agreement, and the employment of the population, replaced the traditional subsistence economy by a paid labor. (Map.1)

Indeed, the factory occupy a significant place in the community, economically and spatially. Situated at the entrance of Calshot Harbor, it makes the transition between the non accessible port and the village. In a way, transition between Tristan da Cunha and the South Africa. By being so, every one month and a half, the fishing boat come, bringing importations (Fig.5) and a 190£ monthly salary in exchange of the “red gold”, the Tristan lobster. (Fig. 4)

The modernization following the 1961 eruption introduced also the importation of all common objects in a consumption, creating new standards in the most inhabited territory. Cars and motorbikes, along all the energy consumption became one of the fundamental renewal of the community. Today, the amount of motor vehicles is estimated to 200, while the 6km long only road stretched as a practice road more than a proper destination.

A new school building was imported, supermarket with foods and other goods, unknown from the island. Moreover, a local museum, a craft center, a community center, a pub as British as it could be, a café as well as a swimming pool. All these features allowed the Tristan da Cunha life to be more comfortable and comparable to the mainland UK current villages.

The dependency to the energy in order maintain the comfort is currently possible through two imported entities and programs. On one side, in the West of The Settlement, the lobster industry supplies all households with electricity with its generators and bring the gas. Indeed, the “gas farm” is one of the strange program developed along this logic, as another storage and trace to an exterior economy. (Fig. 6) And on the other side, on the South of Edinburgh, the scientific and political intervention of the United Nations after the WWII, the CTBTO station. (Fig. 7)
The Comprehensive Nuclear-Test-Ban Treaty Organization station is indeed specific as it is the only building, enclosed by volcanic stone wall, to have a restricted area for cattle. The land is controlled to not have magnetic and shock interferences. Despite the rarity of the land, the program was accepted as it unofficially provides eight hours of electricity to the islanders under the form of fuel.
Then, the settlement of these official activities needed a formal representation of the British Oversea territories, as part of United Kingdom. The decision was made that a resident administrator appointed by the Foreign and Commonwealth Office would stay on the island. Here again, it changes the traditional horizontal political organization of the community, between a Chief Islander and a council only.

TERRITORIAL EXCLUSIVITY

The increasing numbers of scientific investigations on Nightingale island, Inaccessible island and much further, Gough island tend to need technologies and supplies regularly. (Fig. 8) The recently UNESCO Nature Reserve along with protection, provides guidelines and ratio to the traditional birds hunting of the Tristanians. (Table. 1)
In order to control their environment, the island now has a satellite tracking system to monitor vessels that enter the Island’s Exclusive Economic Zone.
Despite this surveillance and the Royal Navy intervention, the increase of the poachers in the territorial waters becomes an issue for the preservation of Tristan da Cunha economy.

The example of the MS Oliva shipwreck is one of the environment disasters brought by the contact of different logics, as well as the shipwreck of the Oil Rig platform in June 2006.

Indeed, the exclusive rights to establish this factory came also the exclusivity in the fishing in the other islands. And the exploitation territory shifted from the surroundings to the 3 islands. By doing so, the reconstruction of the port became fundamental in the exploitation and the economy of the South African company. Thus, due to the lack of resources, the intervention of the RAF and the investment of 7millions £ was necessary.

The scenic vernacular approach is followed by all the islanders houses and most of the buildings, only one house, that of the British Administrator is built on different materials and direction, facing North/South. Along with the modern development of the island, the establishment of the three current programs is a radical change in the logic of territorial appropriation. Where the two firsts are directly linked to the control of resources, soil and halieutic resources, the latter is expressed in a more subtle way.

	1996/7	1999/0	2002/3	2005/6	2008/09
Gough island	104.111	93.647	76.608	57.071	67.533
Nightingale island	63.474	52.623	56.614	62.276	72.259
Inaccessible island	73.306	64.176	70.775	92.945	114.465
Tristan Da Cunha	119	122	133	160	180

	1997/8	2000/1	2003/4	2006/7	1996
Gough island	79.097	73.617	94.868	56.646	331 t
Nightingale island	52.474	52.536	57.472	62.333	
Inaccessible island	62.521	66.637	77.283	103.281	**2014**
Tristan Da Cunha	112	124	138	180	400 t

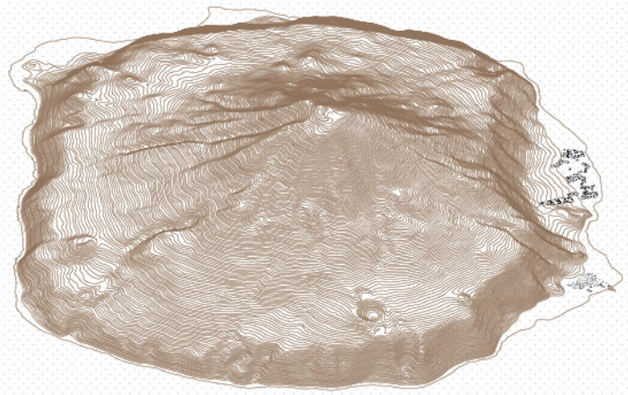
	1998/9	2001/2	2004/5	2007/8
Gough island	99.628	90.133	65.245	62.060
Nightingale island	51.812	57.037	61.368	65.584
Inaccessible island	61.492	70.512	84.484	114.566
Tristan da Cunha	114	127	158	187

75% of the islands' economy

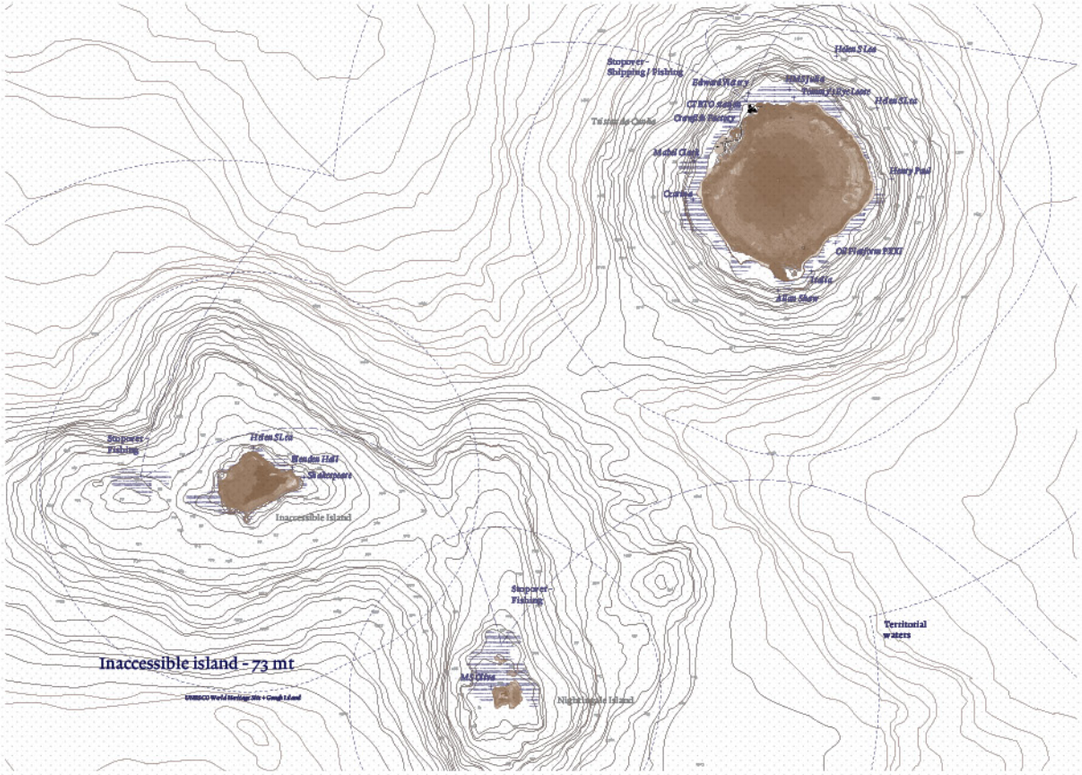
Table. 1 : Recent catch available for assessment of the rock lobster at the four islands. MARAM, University of Cape Town, May 2009.

Fig. 40 : Agulhas II, scientific boat.

Fig. 41 : Fishing Boat approaching The Settlement.



Diag. 20 : Population repartition on North West Beach



Diag. 21 : Tristan Da Cunha group islands and the fishing boat' stopovers.

Fig. 42 : Heavy lift crane in Calshot Harbor. Jon Tonks

Fig. 43 : RFA Lyme Bay military boat.

Fig. 44 : Precast concrete dolomes.

FACTORY AND PORT

IMPORTED APPEARANCE

In the recent years, the buildings exteriors have undergone multiples changes, and the vernacular expression of the community has changed. From the Factory to the settlement, but also the governance of the island evolved to integrate an import part of importations.

The houses were modified along the introduction of generic materials shared between Saint Helena, Ascension and Tristan da Cunha, as the corrugated metal sheets and the asbestos-cement roofing. Concrete applied to the constructions revealed a strange mix of tradition and generic elements, a kind of systematic application to replace the stone at first sight.

However, while the main appearance hardly changed, the details of the constructions were transformed. The thatched houses are now concrete houses, and we recognize multiples generic and imported elements. The plastic windows, the metal roofing, the brutalist concrete, or the plastic water tanks alimenting the house make it an aggregate of modern construction.

However, the factory and the port are the two constructions embodying the more this aspect.

GENERIC ASSEMBLAGE

The original fishing factory, situated on Big Beach was totally destroyed by the lava flow from the 1961 volcanic eruption. Then, due to the storms and forceful winds, the one rebuilt was destroyed by fire while deprive Tristanians from their main financial resource.

The importation of the building in December 2008, brought this fully assembled building in Tristan da Cunha. From the steel columns, the aluminum cladding to the bricks, the use of the MV Baltic Trader and the MV Edinburgh to bring the construction was essential.

First, the crane to lift and transport the elements had to be designed in such a way as to be easily transported to and erected on the island.

A purposed built powered pontoon was also sourced and supplied by the Apple Group, commissioned by the Overseas Territory government in order to transport the crane components. Indeed, some were 14m in length and 4 tons in mass, to be transported from the supply vessel to the shallow drought Calshot harbour of the island.

Where bricolage was a fact within the settlement, logistic of the industrial activity was fundamental. The steel bars of the buildings, along a simple assemblage were also imported. The generator room and the factory were then mounted by a team constituted by the fishing company, with little implication from the islanders except main guidance for the terrain.

The containers also brought by the raft in Calshot Harbor, were the habitat for the team of the 18 South African based personnel.
These entities have many similarities with the containers of the summer houses in the South of the island, temporary used by the islanders and by the Administrator.

MILITARY INTERVENTION

With the harsh austral winter imminent, the remote UK overseas territory of Tristan da Cunha sent an urgent request for its harbor to be repaired in February 2008.

The island is not self-sufficient and is entirely dependent upon commercial maritime support for the movement of its people, supplies and trade. Then, the collapse of the harbor isolated the island and in turn had a damaging impact upon community of the island.

In response, a Joint Task Team aboard the 16000 tonnes RFA Lyme Bay to carry out the reparations was sent. The dependency to such an important investment became essential for the islanders to start again their exchange and subsistence oriented life in parallel.

Dolosses, concrete layering, port reinforcement and emergency materials were the main features of the operation. Completely though from the exterior, this approach of construction, and the size of it, conditioned directly the transport. The 5 tons dolosses becomes a standard and generic logic for the protection of the port.

DEPENDENCIES

Far from the image of the autonomous Tristanians, the disasters usually come along the support, both financial and political of the United Kingdom.

Through the distant relation to its former colonial empire, the islanders of Tristan da Cunha oscillates between a desire of being part of a larger territory, through scientific investigations and keeping a certain distance. The colonial aspect of these interventions lies in their economical and architectural expressions.

Concrete harbor storages

High Speed Fisheries Patrol boat

Aid : Falkland islands Shipyard

Concrete quay reinforcement and 20m wave wall

Cost : £7 million

Aid : Royal Navy Joint Task Force

Steel infrastructure Electricity generator Room monitored from Cape Town

Aid : Anchor Steel Company

Road access to Edinburgh of the Seven Seas

80 ten tonne dolosse importation

Aid : Royal Navy Joint Task Force

Crayfish Factory.

Aid : Ovenstone and The Apple Group Construction, Anchor Steel Company

Mobile crane and pontoon for goods and importation disembarkation

Crane 10.8 metre-high, with a span and length of 19 metres and 8 metres

Cost : £1 million

Aid : Petrel Engineering and Department for International Development

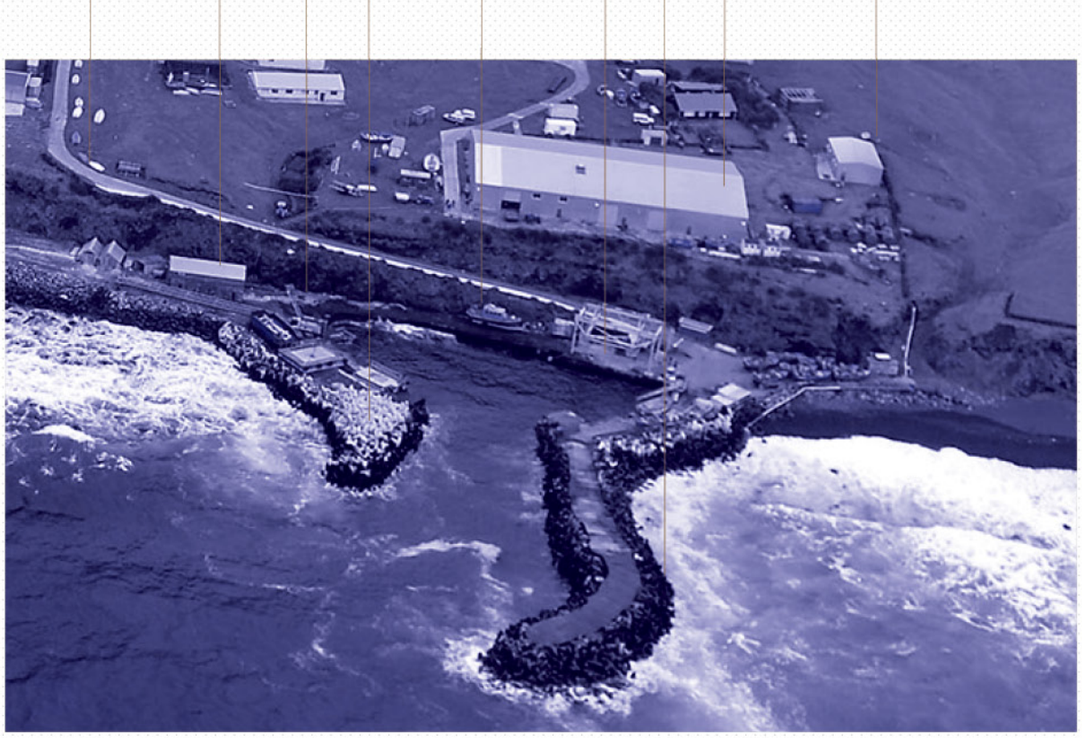


Fig. 45 : The Factory and aerial view of Tristan da Cunha

Pedestrian path to Calshot Harbor

Entrance

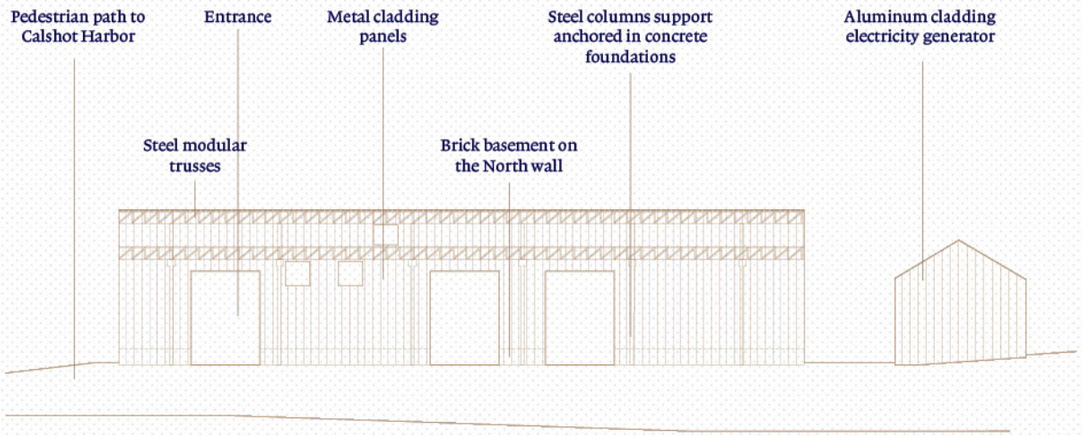
Metal cladding panels

Steel columns support anchored in concrete foundations

Aluminum cladding electricity generator

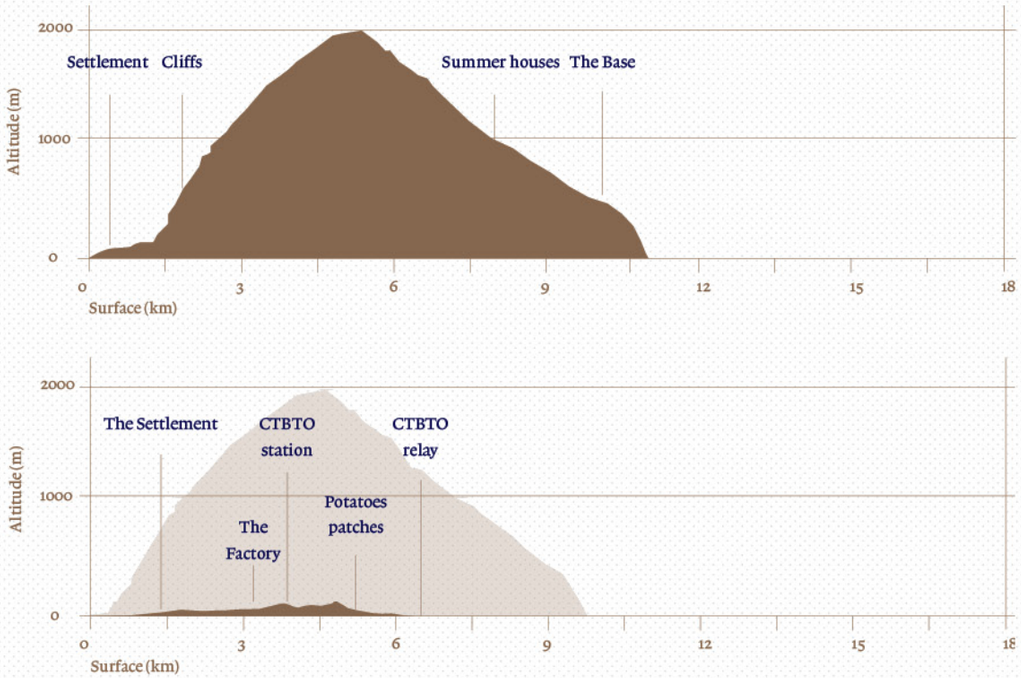
Steel modular trusses

Brick basement on the North wall



Diag. 22 : The Factory after material importations, 2011.

Fig. 46 : A view of Tristan Calshot Harbor,



Diag. 9 : Sections - NE/SO & NO/SE

"We also need urgent action to safeguard the waters surrounding our overseas territories."

Crawfish areas
Potatoes Patches
Grazing areas
Industrial buildings
Maritime routes
Roads
Settlement
Grass Regulation zone
CTBTO Station
Harbor
Shipwrecks
Hiking trails

Great British Oceans Coalition act in 2015 about the role played by United Kingdom in the marine protection of its South Atlantic overseas territories

Tristan Da Cunha Map - *Colonial Expressions*
1/110'000

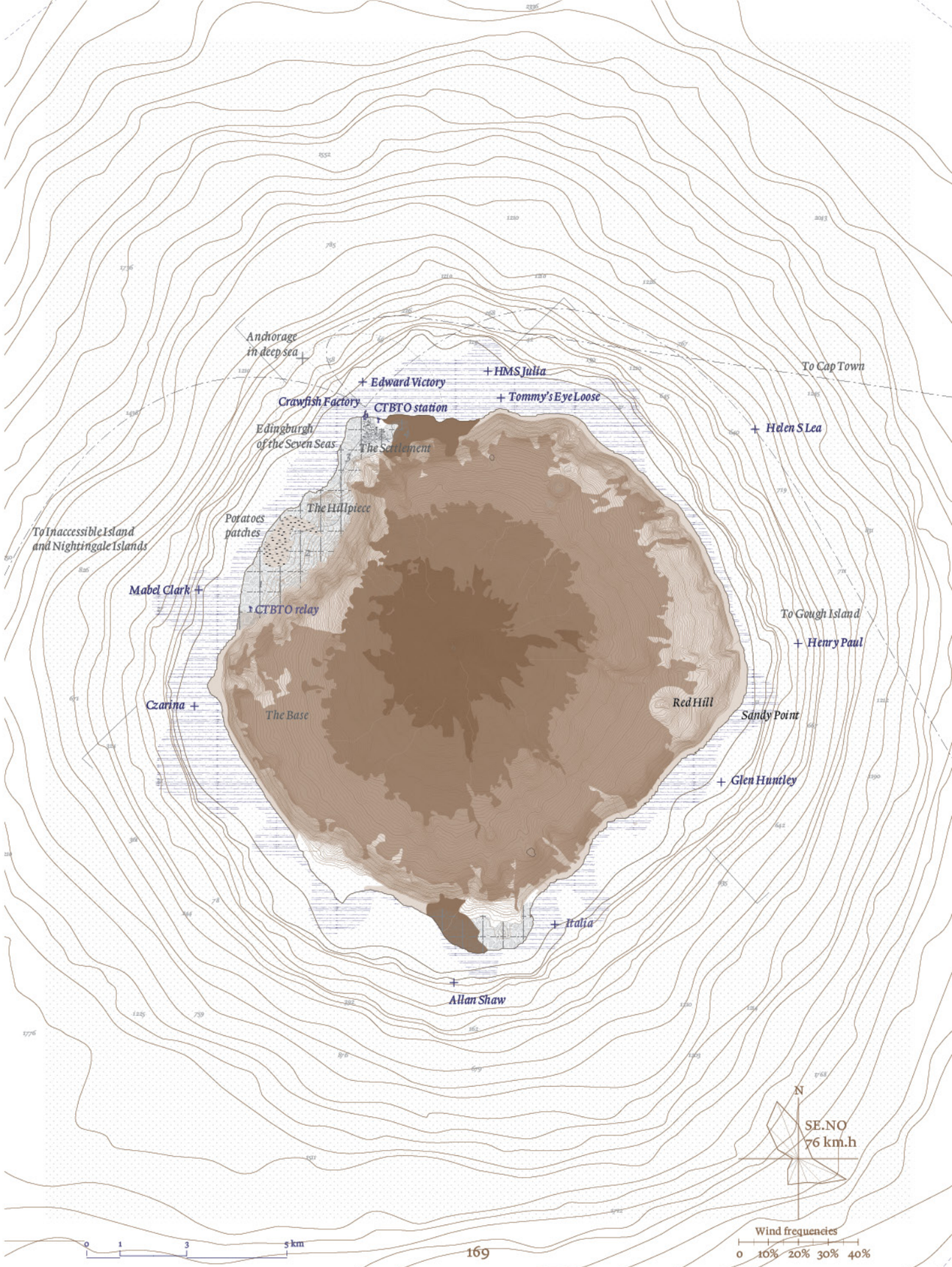


Fig. 51 : Tourists in Inaccessible Island Andy Isaacson, 2015 .

4.1 - Remoteness degrees

DISTANCE

The British South-Atlantic Overseas Territories are the *vestiges* of the old British Empire who set its 33'700'000 km² territorial power by a massive navy fleet.
As seen with the previous chapter *Colonial*, between the 16th and 18th centuries these Islands were high strategic places, supplying stops, on the sailing route to India or towards the Cape Horn. They were also important sites for whaling. At the end of the two industrial revolutions and with the opening of Suez Canal in 1869, these places became obsolete and the islanders who still stay there, are now the survivors of this passed epoch.

Isolated doesn't necessary mean loneliness; small communities are often seen as united communities with intense social interactions. People can feel way more alone living in the small room of a generic building located in the middle of megalopolis than in the house of the most remote village on earth.
Indeed in megalopolis, a person is an anonymous body living among million of other anonymous moving bodies while in theses islands each people are a part of a limited community.
Furthermore, the harsh conditions of remoteness creates a strong cohesion between the members of a same community. Somehow, there is a proportion between the remoteness degree of a community and the strength of its social organization. And this is where the juice of resilience comes from.

The map *Shipping Lanes & Air traffic* shows an interesting aspect of the remoteness of theses islands. There is globalization every where around them. Everyday, a significant amount of Cargo are passing near them when airplanes are flying above.
The three islands seem completely disconnect to global systems of transport.

Following the definition of chapter I *introduction*, the first parameters than define remoteness is the distance. A distance is a physical measure, a line, between to points. Here, we focus on the distance between urban areas and a extreme-peripheral place.

A pole of inaccessibility is an extreme point of Earth which is hard to reach due to its remoteness to geographical features that could provide access.

INFRASTRUCTURES

Distance is not the only one condition of remoteness. A place can be far from a center of activities but well connected by infrastructures of transport or/and communication.
On these islands, airplane and telecommunication break the logic of physical distance.

However, because of natural conditions, each of the three islands don't give the same possibility to implant an infrastructure easily.
Besides the construction of an airfield, a port or the development of systems of communication are intimately tied to colonial programs in place.

EXCHANGES

"What counts in the perception of the insular position by its population and, above all, whether the sea is seen as an obstacle or an instrument of relationship"[1]

Staniscia Stefania, *Islands,* 2011

The apparent remoteness of the South Atlantic islands from major sources of goods exchanges contributed to the fascination for the edges of our oceans. On the other hand, respective Nation-States military forces recognized the strategic significance of these secluded territories in a worldwide governance competition.

The weak economic made the communities of South Atlantic Ocean - besides not "indigenous" population - particularly vulnerable to colonial (meaning dominant and foreign) related program of implantation.

The remote fragments of the empire's market supplying chain change in favor of a non-physical proximity. The four islands, through the nodes of the communications networks, become potentials. Potentials to support geopolitical decisions, resources exploitations, scientist explorations or even program of preservations for tourism industry.

These previous programs are the main links that join the oceanic islands with the rest of the world.

Main maritime Port
World Cargo Shipping lanes
World Air traffic

South-Atlantic Map 1 - *Shipping lanes & Air traffic*
1/50'000'000

THREE DEGREES OF REMOTENESS

Within the British Overseas Territory, the three isolated islands don't give the same degree of remoteness.
The definition of different remoteness degrees between the three islands appears interesting to understand the spatial expression of the resilience in isolated conditions.

Resilience of isolated territories has been define previously as the mechanisms of adaption emerging from the condition of remoteness. This socio-ecological phenomenon creates spatial expressions that interest us deeply. It is the superimposition of two opposed logics,aesthetics, cultures or architectures, one vernacular and the other colonial in the same very limited territory.

Three parameters has been choose to define remoteness: distance, infrastructures and exchanges.
Regarding theses three parameters, the thesis starts from the hypothesis than the more the remoteness degree is, the more the spatial expression of resilience will be radical to a point that hybridization will appear.

Ascension islands is seen here as the first degree. Indeed, the islands can take the advantages of the colonial programs in place with a military airport and the BBC relay station. RAF *Ascencion* is an US and British military base use for operations in Africa and Middle East. However, in 2003, the governments of British and US agreed to allow a limited number of non-scheduled civilian aircraft to land on ascension islands under the responsibility of the British government
Besides, the *Wideawake* airfield is regularly used as a refueling stop between United Kingdom and the Falkland Islands which is an other British South-Atlantic Islands. It is actually one of the two only ways to reach the Falkland islands.
There are twice weekly flights from the RAF *Ascension* to the UK (RAF *Brize Norton*) and to the Falkland Islands (RAF *Mount Pleasant*).
There is also a weekly flight between the island and *Patrick* Air Force Base in Florida. A military supply port was also built next to the airport.
The RMS *Saint-Helena* makes once a month a visit on Ascension that links the island with Saint-Helena and Cap Town in South-Africa.

These little volcanic land is the node of a military transport system which can be used by the islanders with restricted access. And the presence of a high-density of infrastructure of communication make the island the less remote between the three.

With the construction of an airport costing the price of 250 millions of Pounds sterling , Saint-Helena has the second degree of remoteness. The island could become the next high-density touristic destination and be very accessible from any part of the modern world. Indeed the magazine Lonely Planet ranks the island between one of the top ten places in Lonely Planet's Best in Travel 2016.

However today, before the launch of the new airport, there is still only one ship that makes regularly journey between the Saint-Helena and Cape Town. The RMS *Saint-Helena*, a Royal Mail Ship combiliner (cargo and passengers) of 105 m long carrying 128 passengers and 1'800 tonnes cargo.
With the new airport, this ship is due to retire.
Furthermore, since 2012, a new submarine cable laying between from Brazil to South-Africa provides the island with high-speed Internet (155 MBit/s connection).

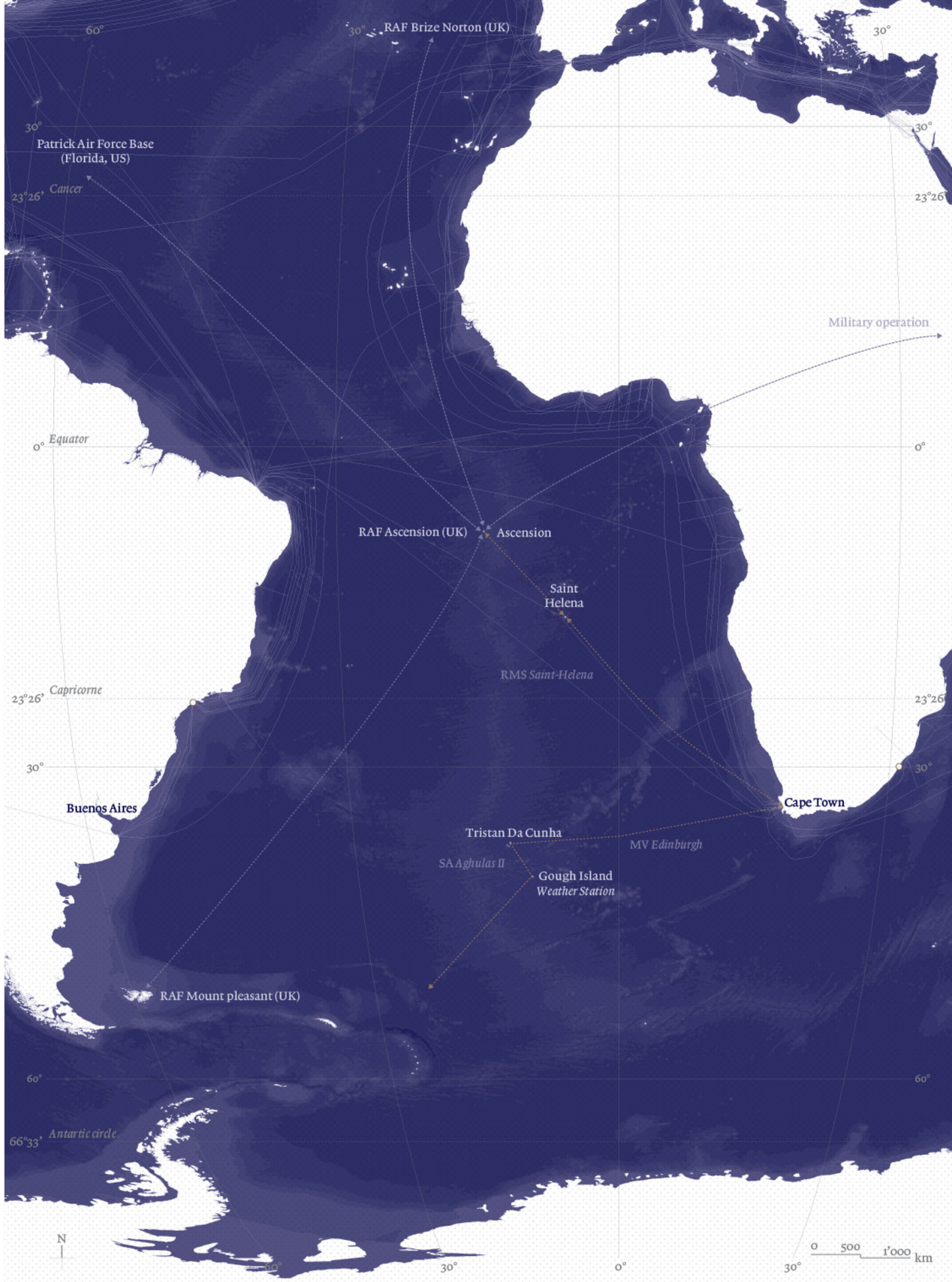
Tristan Da Cunha has, from far, the third degree of remoteness. There is no regular passenger ships between the island and the mainland.
For the year 2015, only *7* shipping was planned.
That is less than once a month. Two main types of boat anchored near the island and link the small community with the rest of the world are the MV *Edinburgh* and the SA *Aghulas II*.
Despites government jobs, the fishing factory, the weather station of Gough Island and the CTBTO station are the main exchanges between the islanders and the mainlands.
In 2006, a VSTA (Very-small-aperture terminal) arrived along with an Internet cafe. 12 lines at 256 kbps.

2015 Shipping Schedule on Tristan Da Cunha [2]

1 - MV *Edinburgh*
Fishing vessel (12 passengers max)
20 Jan - 24 Feb
4 Ap - 28 Apr
29 May - 4 June
9 July - 13 July
21 Aug - 13 Oct

2 - SA *Agulhas II*
Polar supply and research vessel (42 passengers max)
8 Sept - 3 Oct

3 - MV *Baltic Trader*
Cargo (unknown passengers)
26 Nov - 5 Dec



> South-Atlantic Map 2 - *Infrastructures & Exchanges*
> 1/50'000'000

4.2 - Spatial Expressions of Resilience

DEMOGRAPHIC EVOLUTION

Demography is a the statistical study of populations, a very general science used to analyze any type of dynamic living population. Social demography in difference to formal demography is an indicative of societal changes in relationships between economic, social or cultural events that influence a population.

For the thesis, demography changes have been found for Tristan Da Cunha and Saint-Helena but the informations were not available for Ascension.
Indeed, because there is no right of abode, the people living there are not considered as islanders from Ascension by the British government. They are seen as *Saints*, which is the name used for people coming from Saint-Helena. Thus not official census are available for Ascension even if there are people are living there for more 30 years.

Demography is usually seen as a field of sociology. It will be use in thesis as informations helping to understand the spatial appropriations of human settlements. The demographic evolution of the three islands explains the logics of resilience in isolated territories and its aesthetic expression.
Indeed, it translates the fragile existence of small isolated communities and their persistence to stay in a remote place.

COEXISTENCE OF TWO FACTORS

Two parameters seem to influence the life in remote place and its demography:

The first one is located at a global scale.
They are outside events that doesn't have any types of relation (physical or economical) with the island's territories. These small communities are directly linked to global scale logics; geopolitical events appearing in very different parts of the world.
Unless the South-Atlantic ocean is defined as a limited region, there is not regional scale and every changes impact directly the fragile life of the population without any steps. This mechanism draws a collision between a very tiny micro-element (an isolated island) and a very large system (the planet). There is no in between.

The establishment of the *East India Company* during the 16th century, the *war of 1812* between UK and US, the defeated of Napoleon Bonaparte at the *Battle of Waterloo* in June 1815, the opening of the *Suez Canal* in 1869 as well at the prohibition of whaling, the end of slavery in British Empire in 1834 that brought between 1840 and 1849 over 15,000 freed slaves, known as *Liberated Africans* in Saint-Helena, the *Second Boer War* in South-Africa between 1899 and 1902 where thousands of Boers were made prisoners in Saint-Helena, the construction of the *Eastern rang in 1940*, a military defense system ending at Ascension Island, the development of a nuclear surveillance program by the ONU in 1997 with stations in Tristan Da Cunha and Saint-Helena (CTBTO, *Comprehensive Nuclear-Test-Ban Treaty Organization*), the increasing race to find new resources after the 1973 oil crisis (hydrocarbons and also today fish) or a series of Antarctic explorations, they all strongly impacted the life of the small communities. The islands ecosystems were transformed in good or bad by theses series of outside events.

The second parameter is located inside. It is related to the unpredictable natural conditions of these islands. Every types of natural and man-made disasters can have very dramatic repercussions. When a community is small and remote every impact can be terrible.

For instance there are few tragedies that could have such a devastating effect on any world community than the 1885 Tristan lifeboat disaster. This is the story told by the islanders of Tristan Da Cunha :
"With the loss of regular shipping and trading opportunities, virtually all of Tristan's able bodied men (15) decided to attempt to trade with the ship West Riding when it sailed off the island on 28 November, despite unfavourable weather. Sailing in a newly donated ship's lifeboat, they rowed out of sight eastwards, beyond Big Point and were never seen again.
The incident remains a mystery, but the 15 men were missing, presumed drowned as their lifeboat probably capsized in rough seas. When the ship City of Sparta called on 26 December the population was 92 - with 13 widows left by the tragedy, and only four adult men including Peter Green (77) and Andrew Hagan (69). [3]

An other example will be link to the lack of suitable and sufficient medical supplies in isolated places. In Tristan Da Cunha, on 4 December 2007 an acute virus-induced flu was reported by the BBC news. Almost all of the 271 British citizens have developed severe breathing problems.

Thus, there is the strange and radical superimposition of two opposed factors, two diametrically opposed

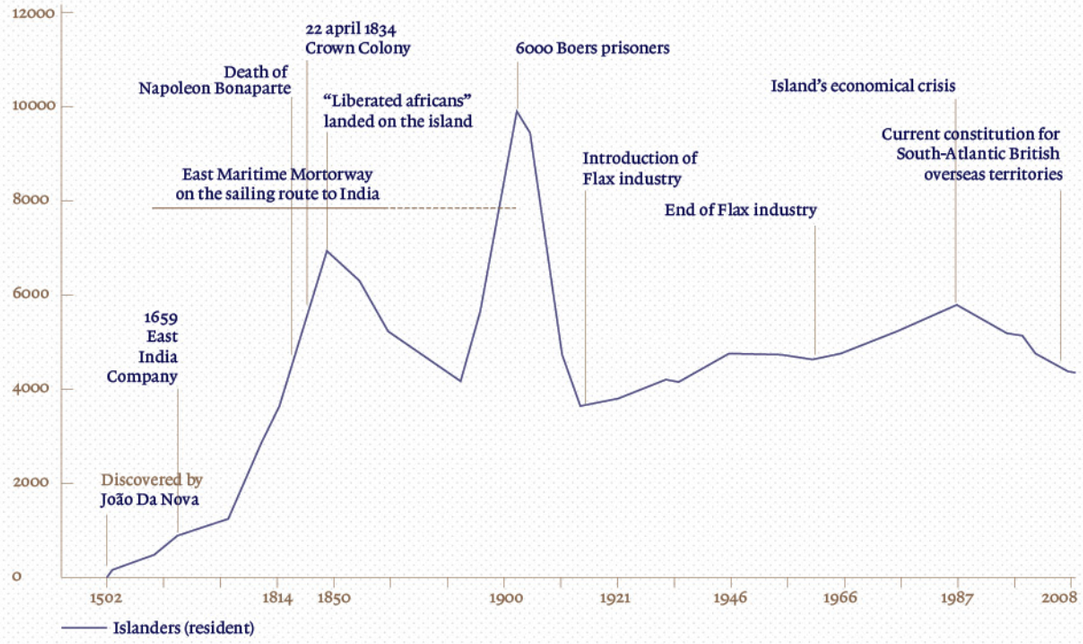


Table 1 : Demographic changes at Saint-Helena

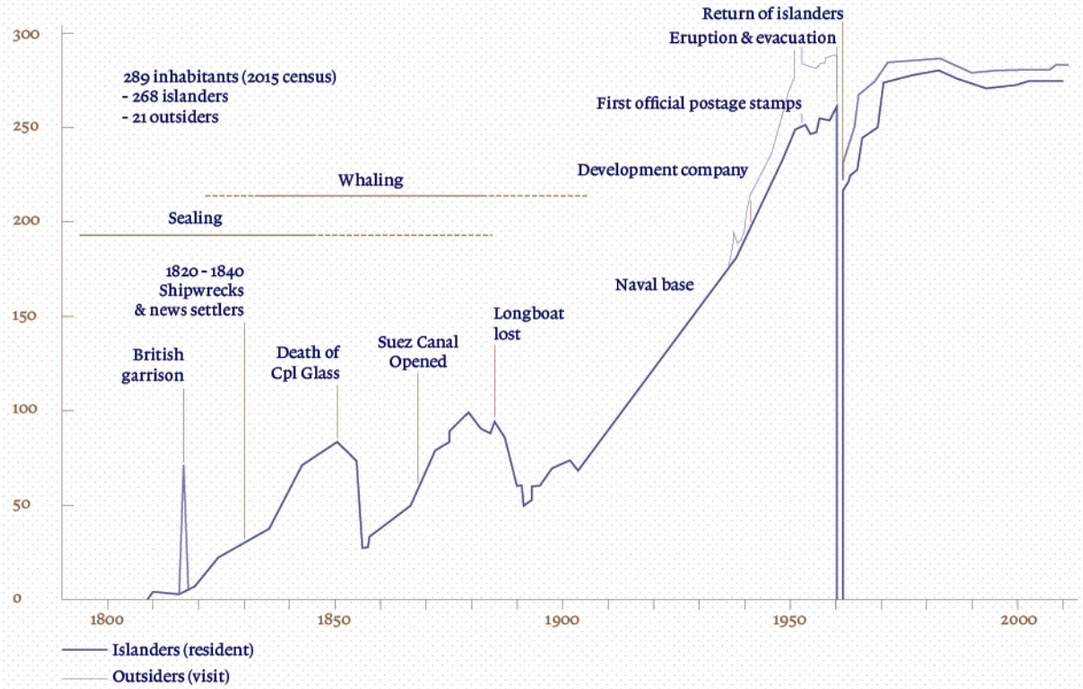


Table 2 : Demographic changes at Tristan Da Cunha

Fig. 1:William Turner *The Shipwreck*, 1805, oil paint and canvas

Fig. 2: National Geographic, photograph by James P. Blair, 1964 Men stand beside a volcano's crater heighten months after the eruption on Tristan Da Cunha Island

scales that strongly influence the development of the human settlements in theses remotes islands.

The two last chapters (II and III) Vernacular and Colonial are the spatial witnesses of these phenomena. As an anticipative reading of the spatial expression of the resilience. However exterior events or interior disasters are not necessary synonym of chaos. They are actually the *raison d'être* of theses islands (to use a word from the Paul Ricoeur text).

OUTSIDE / INSIDE

The place where the resilience seems to be the most radical is Tristan Da cunha :
Tristan Da Cunha is called the *Island of Desolation* because almost all of the islanders are descending from shipwrecked people. Actually, this is mainly how the island was populated. Each shipwreck brought fresh blood to the community, as well as tools and material (the wood was often re-use to build the houses). The new people came with different knowledge. It is believed that the design of the longboat, the traditional tritanian fishing boat, has been made by Gaetano Lavarello, shipwrecked on Tristan in 1892 after his ship *Italia* was on fire in the ocean.

All the stories of shipwrecks have been methodical transcribed in the annal of the prof. Arnoldo Faustino. The results is interesting : each steps of island development is linked from far or close to such disaster. Each disaster is the opportunity to build better and stronger with new technologies. In 2005,for instance, a hurricane destroyed the fishing factory. When they re-built it, a new electric network came as well as Internet.

The 1961 volcanic eruption takes part of this mechanism. As told by the French writer Hervé Bazin , in his book *Les Bienheureux de la Désolation*[4], the 1961 volcanic eruption was a very dramatic event. It forced the all community to leave the place in urgency.
When they came back two years later they brought with them what they wanted to keep from modernity. Machines, tools, electricity... Today there are more than 100 cars in the islands for no more that 6km of roads...
Some can wonder why they wanted to go back to the harsh live on their island after spending times in the luxury of western life, in England.
A possible answer would be by understanding the relation that this population has with their territory. Living in a very remote place creates a very strong relation between people and a place. It develops a logic of subsistence. All islanders learn the knowledge needed to live there. If you take off this link, then more than half of what these people know is useless. Beside, they have such freedom in this place that nobody could have in modern western societies.

The designer and PHD cand. Clarence Boulay who spent 8 months studying the life in Tristan Da Cunha summarized for the research what she learned from her In situ investigation. Below are some interesting notes[5]:
- The necessity of being skillful (there is no possible of assistance, all the main important knowledge need to be contain in the island)
- A paradoxical life rhythm altering very low time with very short events (fishing, arriving of a boat)
- The importance of the wind in the everyday life and in the spatial organization of the community.
- A permanent adaptation
- A governance shared between British administrator and island's council.

Each of the three islands doesn't give the same capacity to create an interior, to create a protected space for the development of human settlement.

Saint-Helena and Ascension have very clear interior exploitable and appropriable. Tristan Da cunha in its case doesn't have any inside. Indeed,the island has the shape of vertical volcanic cone that makes any appropriation of the inner land impossible. The only one human settlement is facing the harsh conditions of the ocean. The village is lying in a very thin strip of hundreds meters wide compressed between the vertical cliff of 600 meters high and the ocean.

IMPORTED VERNACULAR

Two opposed logics, one vernacular the other one colonial are superimposed in these very tiny territories creating a very specific aesthetic.
As we saw previously, each islands define a different degree of remoteness. The comparison of the three islands allows the research to understand that even if they have a very close background they each have specific condition that creates different degree of resilience.
This is what the next following maps try to show. The maps cartography the spatial expression of the resilience in each of the three islands. In blue is the colonial architecture while the brown shows the vernacular architecture.
Imported vernacular arrives here as a conclusion of this reading. It is the aesthetic that emerges from the analysis. An hybridization coming from the spatial transformation not only of the buildings but of the all territories.

4.3 - Resilience degrees

SAINT-HELENA

The Saints, at the edge of multiple cultural expressions developed a deep understanding of their history, and its landscape expression.
The presence of dichotomies on the very same landscape reveal interesting reactions within an environment. Indeed, there is cession within the appropriation of the island.

It strangely makes echo of the pacific natives communities where the perception of the territory between two part, an upper part and a coastline always been a strong cultural expression. In the same way, the research can observe with the favorable climate the presence of an agriculture tradition on one side and a dense, settlement on the other part.

Beyond the potential to become subsistent like the Tristanians tend to be, the choice of culture exchange and dependency still remains a fundamental notion for Saint Helena inhabitants. The focus of Saints on landing areas make them dependent from British power.

Indeed, Today, the St Helena economy is essentially aid dependent, most of this aid is received from the UK Department for International Development (DfID).

The successive rises and fails of various economies revealed in the Saints a capacity to sustain crisis, despite remaining a strange colonial empire vestige. The superimposition of these logics creates a particular example of resilience.

The exodus of Saints in direction of Ascension Island, Falkland islands and South Africa prove also the desire to be part, or the necessity to react to exterior opportunities.
Through its specific history, a common culture of patience, acceptance and exiles emerges in the Saints culture as another degree of resilience, one step further from Ascension island.

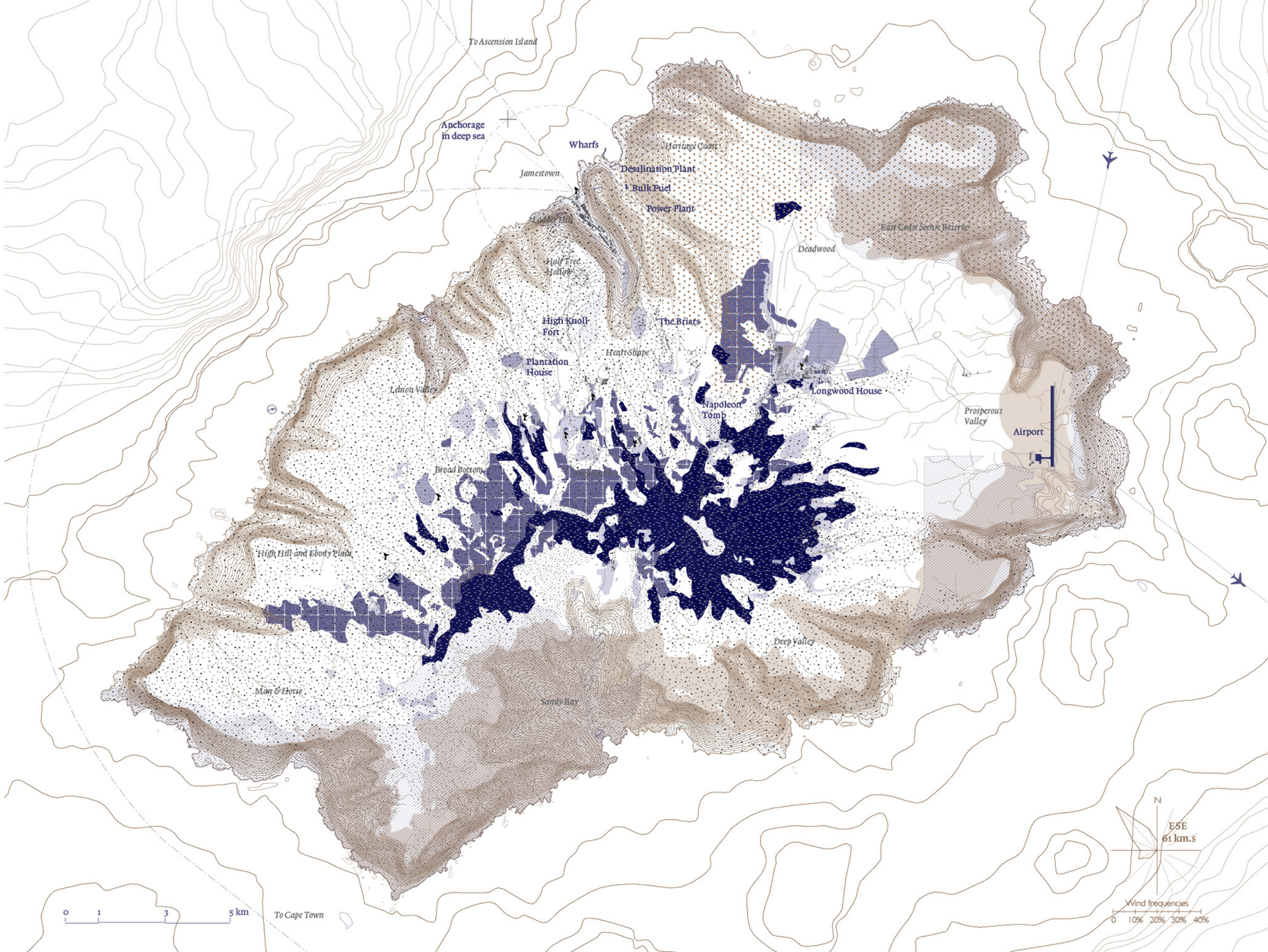
VERNACULAR EXPRESSIONS

- Central moisture
- Semi desert
- Barren sea cliffs
- Dry accacia woodland
- Late flank flow
- Main shield
- Lower shield
- 57 Bathymetry depth
- Surface Bathymetry
- Topography
- Bathymetry
- Watersheds

COLONIAL EXPRESSIONS

- Flax agriculture
- Pasture Grazing areas
- Restricted Tourism areas
- Housegarden lands
- Maritime routes
- Roads
- Settlements
- Fortifications and batteries
- Weather station
- Airfield
- Air traffic

Saint-Helena Map - *Tourism as future* 1/60'000



4.3 - Resilience degrees

ASCENSION ISLAND

There, the colonial, embodied by the military activities, dominates the place. Restriction areas and protected reserves create a clear management of the territory. However, where Tristan Da Cunha community exploit their own land for subsistence, the deep appropriation of the territory through a fragmented logic emerges. As nobody can own a land or house, the spatial expression of the resilience is less effective.

The community express however its reaction by simulacrum of privacy through constructions. An enclosed architecture, through fences, walls and restricted area create an ambiguous *public space* like primitive cultures in desert landscapes or as a specific kind of permanent temporary camp.

Without natural conditions to settle in, to trigger communal living, or to re-bounce from after a traumatic event, Ascension Island cuts any will to persist in this environment.
When Cedric Henry, a shopkeeper living on the island declares to Fred Pearce on Ascension Island, that being there "*It's like being on an oil rig now*", the highly artificiality of the territory is obvious. It makes people focus on every resources available.

Niches economy, tourism, exploitation licenses becomes the main tools for an off-shore appropriation of the Ascension coastline. Thus, compromises are to be earned following long processes, in parallel of short-term employment.

The same mechanisms happened in Diego Garcia islands. This small British atolls located in the middle of the Indian Ocean became a highly strategic place for US and UK air forces. Then the political pressure tends to confront any community cultural expression while systematically evacuate inhabitants .

The condition of the soil, not only in Ascension Island, but in many countries, remains fundamental as cultural expressions and site specific reactions.

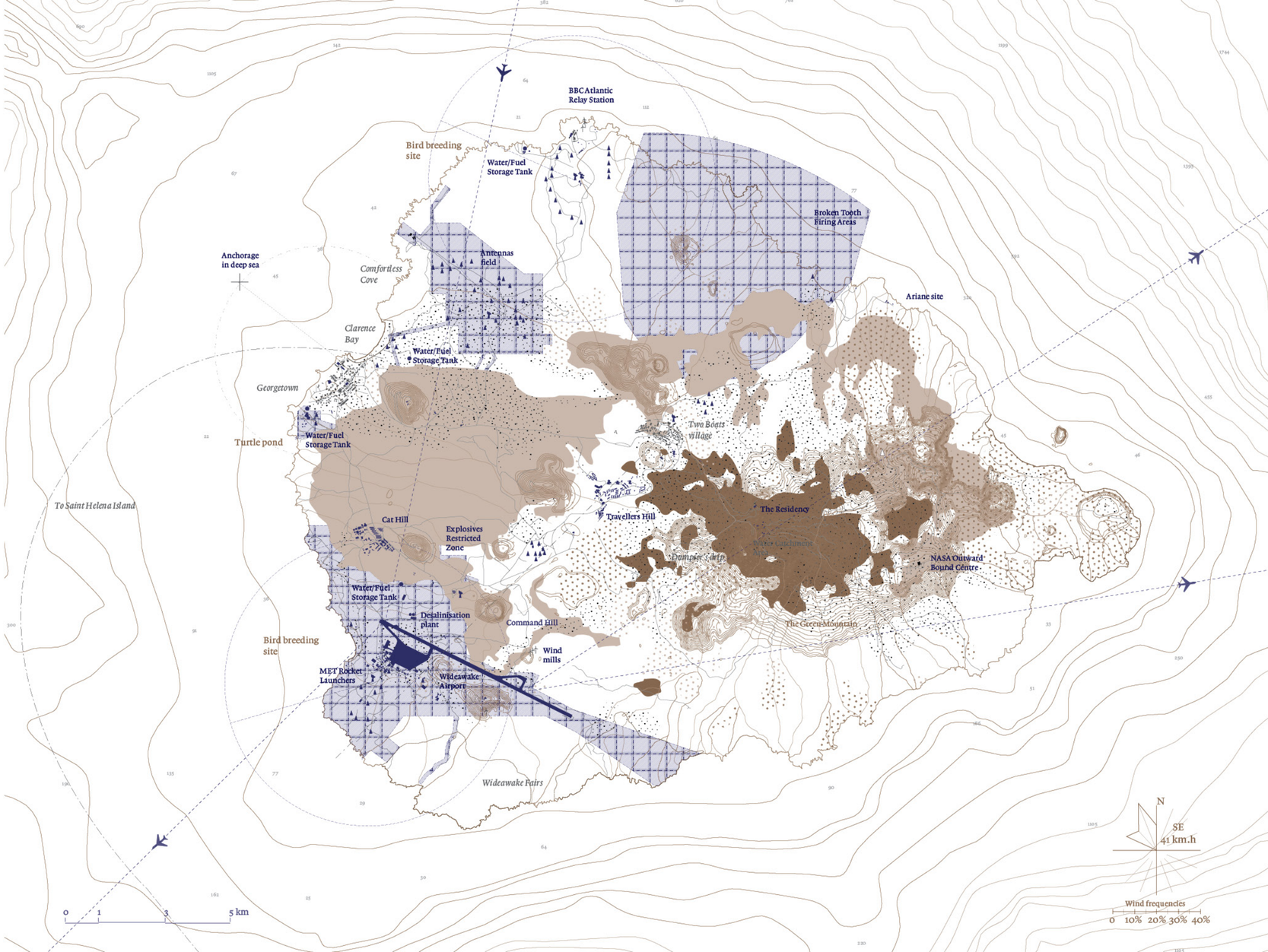
VERNACULAR EXPRESSIONS

- Tropical Forest
- Semi desert
- National Conservation zones
- Trachyte
- Pyroclastic cones
- Pyroclastic deposits
- Surface Bathymetry
- Bathymetry
- Bathymetry depth
- Topography
- Watersheds

COLONIAL EXPRESSIONS

- Aerial masts antennas
- Desalination power plant
- Restricted areas
- Industrial buildings
- Maritime routes
- Roads
- Settlements
- Bulk tank Fuel supply
- Radar stations
- Airfield
- Air traffic

Ascension Map - *A military position*
1/60'000



4.3 - Resilience degrees

TRISTAN DA CUNHA ISLAND

As the most remote island of our study, Tristan Da Cunha embodies a resistance and a persistence in territories.

By being so, the islanders always lived in extreme remoteness, truly isolated, and develop a surprising capacity to absorb events, but also disasters, to anchor their identity to the island.
Indeed, deeply rooted in this natural environment, the development of a vernacular logics allowed them to undertake difficulties.

From sociability through the passers-by vessels, to *bricolage* caused by the scarcity of materials, the Tristanians were self-sufficient in many aspects. Even the eruption of 1961 showed the desire of the inhabitants to stay on this place while moving to the other islands of the archipelago.

More inclined to give up on modernity and technology than leaving the island again, the islanders are however more integrated in the negotiations with the rest of the world than it seems.

Indeed, the evacuation of the entire island community during 2 years in England was the trigger to modernization and importation of highly artificial goods. Construction materials are the clearer case of the re-interpretation of generic features.
The superimposition of imported concrete, volcanic stones, metal panels and New Zealand Flax, creates a strange vernacular.

Moreover, the exterior of the island, its complete openness to the harsh environment as we saw in the Chapter I makes the community a model of resilience in remote territories. And in-between these natural and artificial factors, the expression of the economical, political and architectural culture remains.

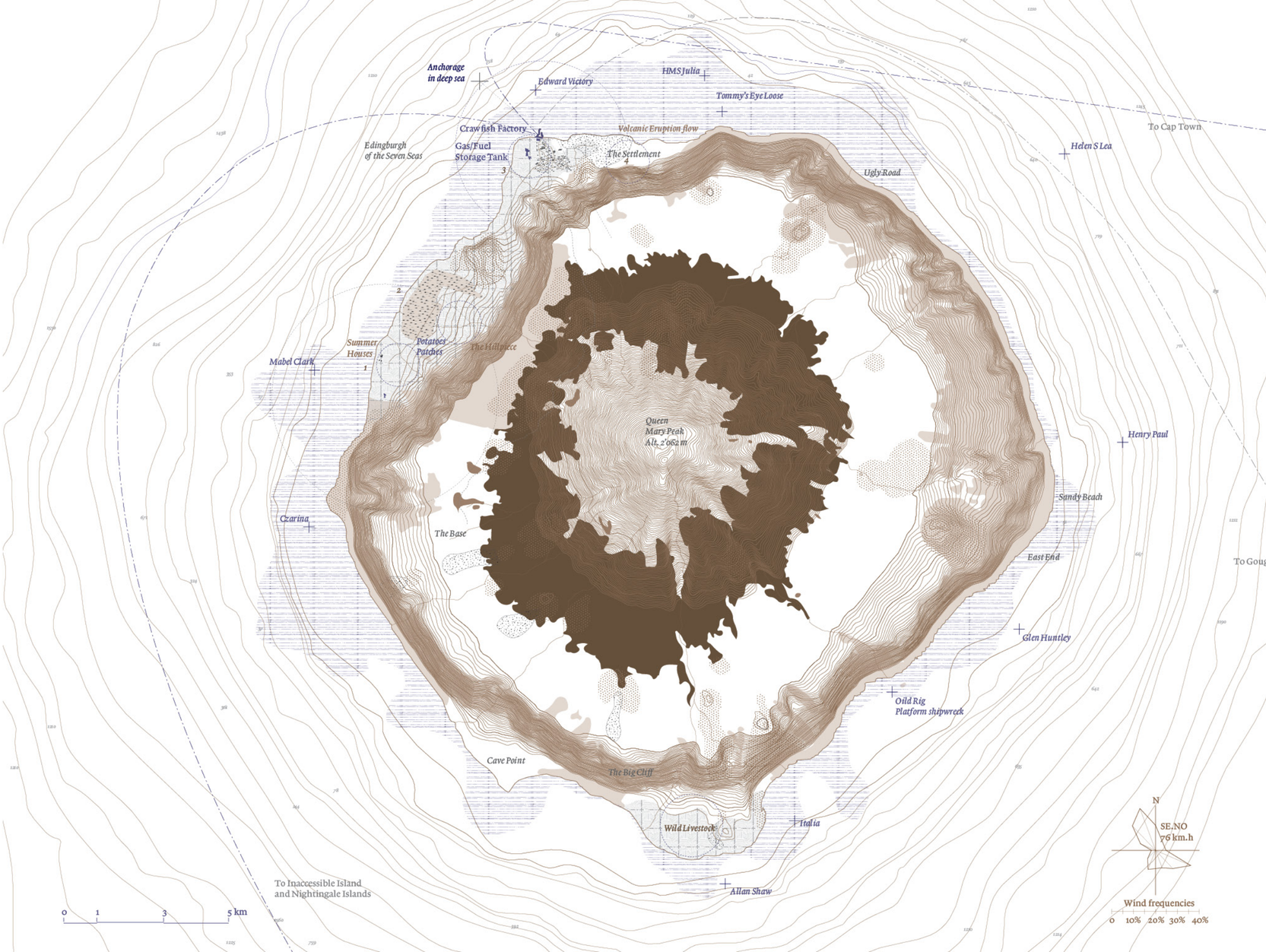
VERNACULAR EXPRESSIONS

- Eroded Cone
- Coastal Grass
- Cinder Cones
- Cinder lava Flow
- Surface Bathymetry
- Bathymetry
- Bathymetry depth (57)
- Topography
- Watersheds
- Lakes

COLONIAL EXPRESSIONS

- Crawfish areas
- Potatoes Patches
- Grazing areas
- Industrial buildings
- Maritime routes
- Roads
- Settlement
- Grass Regulation zone (1)
- CTBTO Station
- Harbor
- Shipwrecks (Edward Victory)
- Hiking trails

Tristan Da Cunha Map - *Coastline resources* 1/60'000



5.1 - Typologies of isolated architecture

INTRODUCTION TO ISOLATED ARCHITECTURE

Imported vernacular is seen here as a possibility to set an architectural language that could be applied for the next step of the diploma project.
To do so, it is important to establish a small theoretical background that will drive the essay.

The very essential component of an imported vernacular is its condition of remotenesses. Indeed Imported Vernacular has been read as an aesthetic expression coming from a situation of isolation. This is why the research defines typologies of isolated architecture. The thesis doesn't pretend to be exhaustive but explores some very specific examples that can give credits to the concept of Imported Vernacular.

Isolated architecture is defined here as an architectural object who was designed to be located on a remote place. Indeed, it is an architecture outside networks and any contemporary urban development.
It is isolated, so it is a type of architecture that needs to contain everything because it cannot rely on anything else. Thus, it is a type of architecture that reacts as an island. By a such definition, it can be considered as a type of *autonomous* architecture.

"An autonomous building is a building designed to be operated independently from infrastructural support services such as the electric power grid, gas grid, municipal water systems, sewage treatment systems, storm drains, communication services, and in some cases, public roads."[1]

It is a building that have direct and rough relationships with an exterior, often untouched and/or hostile. It tries to take advantages of its natural conditions by creating its own ventilation or energy.
It can be an architecture that develop by necessity a very specific relation with the ground and climate conditions.

It is not necessarily a singular building but could also consists of a small group of buildings however it has to work as a micro-system, one element constituted of parts.
The design of this architecture is intimately links to two factors : natural conditions and programs.

The program is often links with the location of the building such as an oil rig, a scientific station, a monastery, a warehouse, fishing house ...

Thus, this object has often a program which has specific relation with the site.

To establish a such typologies, the thesis mainly refers to the work of Peter Maerkli as ETHZ professor[2].
His architectural studio in 2013 worked on the topic of *Isola di Levanzo.* It is the smallest of the three main Aegadian Islands in the Mediterranean Sea west of Sicily, Italy. It measures about 4.5 km in length and 2 km in width. The aim of the studio was to establish an architectural language outside urban areas; outside usual references and common regulations.
Here are few translated questions of the brief :
How the building interacts with the landscape ?
Which elementary architectural elements, select the expression and create the shape ? In what materials the house is built and what kind of life is lived inside ?

Regarding the main dichotomy of the research, vernacular versus colonial, eight examples have been divided in two typologies : the first define a series of vernacular attitudes and the latter is related to colonial programs.

To establish the first typology *Vernacular attitudes*, the thesis uses the classification made by Bernad Rudofsky in his book *Architecture Without Architects* [3] wrote in 1964. Each of the four selected projects show a singular logic of spatial adaptation that could be used as references for the islands. As vernacular attitues they draw specific relations with the ground, climate and materials.

The second typology *Colonial programs,* is based on the territorial reading of the chapter III. The thesis selects projects coming from scientific, military or industrial programs. These projects represent the implantation of foreign and invasive objects in remote places.

VERNACULAR ATTITUDES

1 - Monastery Panaghia Chozoviotissa, Amorgos, Greek.
2 - Church of Saint George, Lalibela, Ethiopia.
3 - Floating fishing village, Ha long Bay, Vietnam.
4 - Nomadic Tibetan tent, Tibet, China.

COLONIAL PROGRAMS

1 - Halley Research Station VI, Faber Maunsell and Hugh Broughton Architects, Brunt Ice Shelf, Antarctica.
2 - Dymaxion house, Buckminster Fuller.
3 - Maunsell Forts, Guy Maunsell, Thames and Mersey estuaries, United Kingdom.
4 - Oil Rig, Draugen oil Field, Norwegian Sea, Norway

Fig. 1 : Espigueiros of Soajo, 1782 Peneda-Gerês National Park, Portugal
Used by early settlerst as wharehouse

Fig. 2 : Halley Research Station VI, 2005 British Antarctic Survey, Brunt Ice Shelf, Antarctica

VERNACULAR ATTITUDES

ARCHITECTURE OF MIMICRY

The orthodox monastery of Panagia Hozoviotissa located on Amorgos, a Greek Cyclades island, is one of the most mysterious monastery of Greece.

It was built during the beginning of the second millennium to protect a religious icon, dating from the year 812, from intruders.

Here is the story that was told :
"Devotedly fulfilling their religious task, workers started to build the first stone walls, but each day, by morning, the work of the previous day had been destroyed by unknown hands. No prayers or incantations would help them succeed in their endeavour. One morning, a shepherd, leading his goats along a path 300 metres above the level of the sea, noticed something hanging off the cliff of Profitis Illias mountain. A builder's tools were hammered into the rock. He hurried back to the village with the news. There, all the villagers came to the only sensible conclusion: it was the will of God that the monastery should be built in that spot. Construction began and it took another 80 years to build the monastery as we see it today."

The monastery shows an interesting relation with its site. It is neither dug in the rock or neither built out of noting. It is in between, as a mimicry of the surrounding landscape and the cliff which the monastery is built against.

The monastery is very a thin vertical building of no more than 6 m wide. Made of the local stones painted in white to reflect the sun light, it appears as symbolic building highlighting the verticality of the landscape and facing the horizon of the Mediterranean sea.

The vertical shape has two advantages : one it makes a safe place to protect the icon and two even if it is an one-sided oriented building the verticality creates a natural ventilation from the bottom to the top.

Fig. 3 & 4 : Monastery Panagia Hozoviotissa, 1088 Amorgos Island, Greek Cyclades island group

ARCHITECTURE OF SUBTRACTION

The church of Saint-George is one of the eleven monolith in Lalibela, a city in Ethiopia.

This church is not a "building" in the strict sense of the word : it is carved out of the rock, from a type of limestone called *tufa*. The stone is the only one material used in the building.
The dimensions of the trench are 25 meters by 25 meters by 30 meters and there is a small baptismal pool outside the church, which stands in an artificial trench.

This church have been constructed during the reign of King Gebre Mesqel Lalibela, of the late Zagwe dynasty between the 12th and 13th centuries.

Here, architecture is though as a subtraction of a space. A building in negative where the roof is aligned with the level of the ground.
Without any surrounding wall, the church re-create its own limits. As a transition, it is a vertical path between the profane and sacred worlds.

It also allows the small church to be protected from wind or any exterior attack.

By a such radical gesture, the church cultivates an ambiguity. It denies the reality of the ground, its related topography but at the same time the construction is completely made from the materiality of the soil.

Different from the previous Greek monastery, it is not an archaic shape. Indeed, the church as been design as rational and geometric cross; a true human production that doesn't mimic nothing expected an abstract geometry.

Fig. 5 : Church of Saint George, 12th-13th centuries Lalibela, Ethiopia

VERNACULAR ATTITUDES

AQUATIC ARCHITECTURE

Ha Long Bay is a UNESCO world Heritage Site. A highly touristic destination located in the Quang Ninh Province of Vietnam.

The bay is composed of around 1600 limestone karsts and isles in various sizes and shapes that make the landscape unique in the world. It is a dense cluster of monolithic islands each topped with thick jungle vegetation, rising from the sea.
More than half of the islands have been named as a result of interpretation of their unusual shapes. *Voi Islet* (elephant), *Ga Choi Islet* (fighting cock) or *Khi Islet* (monkey) are some of the names used to qualify the islands.

Amount the daily procession of boats and other touristic activities, a community of around 1,600 people live on the bay dispatched in four fishing villages. The population live on floating houses and are sustained through fishing and marine aquaculture.

Outside the visible touristic part, a significant quantity of trash and old rusty ships are hidden.

An interesting phenomenon is appearing. The vernacular attitudes of the village follows the logic of "as found". This means that the houses are made from the material found in the area of the place.
However here, there is no adobe, neither stone available on the site (because everything is protected) or rammed earth.
The people build their house with plastic tunnels, driftwood, wastes of boat, blue tarpaulins or sheet metal that they find in the hidden part of the bay.

These villages could be seen as slums if the houses were not well done, colored and strictly organized.
There is a strong vernacular logic that makes theses villages specifically linked to the bay.

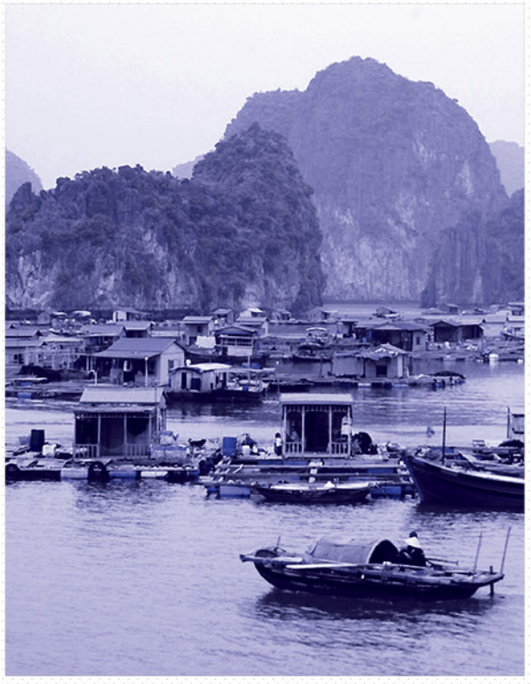


Fig. 6 & 7 : Floating fishing village Ha Long Bay, Quang Ninh Province, Vietnam

NOMADIC ARCHITECTURE

The picture below shows a contemporary nomadic Tibetan tent located around the Namosto lake in Tibet, China. It seems used during the transhumance season.

This type of tent is a vital source of housing for nomads living in mountainous regions of Central Asia.
Most of the tents are made from yak wool that has been hand spun into yard. It takes between 10 and 12 months to make a mid-sized tent.

Tibetan tents are very thin in comparison to the Mongolian yurt which is insulated with a thick layer of wool. The sky can be seen through the fabric inside the tent. The hut are built using hand spun yak wool rope and 8 to 12 wooden poles.
The top of the tent has a often a large opening to let smoke out and to let the warm sunshine in.
Around the tent, flags for prayer can be found flying around the place and directly from the tent roofs.

Inside of the tents, there is very few belongings. It is very basic and simple. The simple space is composed of some sleeping mats and blankets, a stove, a table or two, a few extra clothes and a central fire.

As a yurt or an hut, a nomadic tent is an ephemeral architecture that has a very interesting relation with the territory. It is not a fixed object built in a very specific place but this mobile architecture that has been built for a specific climate and following a precise program (the transhumance of yak).

Contrary to the two first examples, the relation with the ground is very light.
The structures of the tents is built to resist the strong wind of the Asian mountains but the envelope of the tents lets at the same time the possibility of a natural ventilation.

Fig. 8 : Nomadic Tibetan tent Namsto lake, Tibet, China

COLONIAL PROGRAMS

SCIENTIFIC ARCHITECTURE : ICE STATION

The Halley station VII is Britain's pioneering research station. It was planned and built for a unique and extreme environment; Antarctica. It is a British research facility that focuses its study on Earth's atmosphere. This is where the *Ozone Hole* was discovered in 1985.

Operational in February 2012, the station is composed of a string of 8 modules, each on stilts with skis.

Before this version, there have been five previous bases at Halley. Through the times, various methods of construction have been tested, from unprotected wooden huts to steel tunnels.
The first Halley I was built in 1956 and abandoned 12 years later.

Like the Halley V, the latest version Halley VI is jacked up on legs to keep it above snow accumulation.
The project is the result of an architectural design competition launched by RIBA and British Antarctic Survey in 2004. The winning design, by Faber Maunsell and Hugh Broughton Architects shows strange and interesting similarities with the drawings of Archigram, *Walking City*. The building has legs, it is make with metal shell and small circular windows.

As a movable building, the station works with modular structures which were built in Cape Town, in South-Africa.
It is the same company (Petrel Engineering) that installed the crane of Tristan Da Cunha harbor in 2009 that provided a fully serviced accommodation for the 32 people of the station.

Fig. 9 & 10 : Halley Research Station VI, 2005
British Antarctic Survey, Brunt Ice Shelf, Antarctica

MILITARY ARCHITECTURE : SHIPMENT & ASSEMBLY

The Dymaxion house is a housing unit developed in 1933 by the inventor and architect Buckminster Fuller to re-think the existing homebuilding techniques.
The first versions used was for a military purpose. During the World War II, the U.S Army commissioned Buckminster Fuller to build and sent a series of theses houses to the Persian Gulf.

There are different versions of the house at different times but they are all intended to be built for any site or environment and use energy efficiently. They all was made as manufactured kits, assembled on site.

Even if the house doesn't refer to any site, there are two interesting similarities : the design of the first dymaxion house (dymaxion meaning dynamic, maximum and tension) was based on the model of a Siberian grain silo where the shape creates a "dome effect" that sucks cooler air downward into a dome.
The second references that can be noticed is the shape a Mongolian Yurt.

Indeed, the circular shape is often use to define an object that creates it is one boundaries, a non-oriented relation with the site.
Following Buckminster words, the house was designed for stormy climate such as temperate oceanic islands, Great Plains of North America, South America and Eurasia.

The structure is similar to the spokes of a bicycle-wheel supporting the roof, while beams radiating out supported the floor.

As a prototype, it is one of the first house that tried to include in the design all the technological components of a modern house fabricated industrially : packaging toilet, water storage and a convection-driven ventilator.
It is one of the first project to use insulated aluminum panels to wrap the structures.

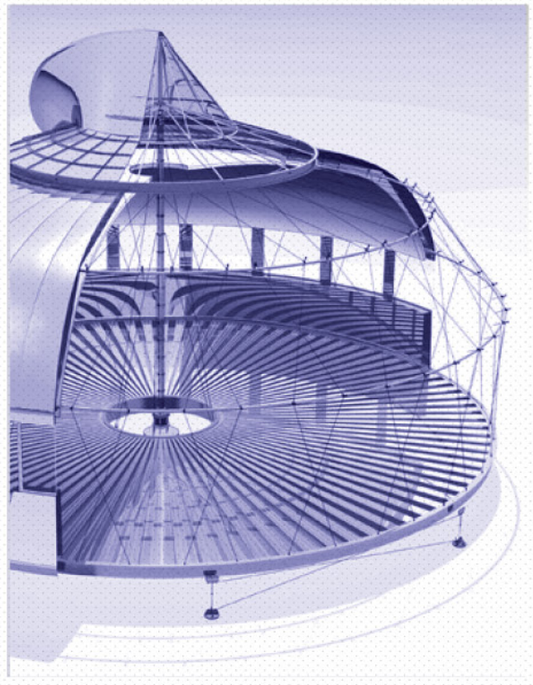


Fig. 11 & 12 : Dymaxion House, 1933
Buckminster Fuller

COLONIAL PROGRAMS

MILITARY ARCHITECTURE : FORTIFIED TOWERS

These small fortified towers was built during the World War II to defend the United Kingdom in the Thames and Mersey estuaries. They took the names from its inventor, Guy Maunsell.

Operated as a navy and army forts during the war, they have later been used as a pirate radio broadcasting. One of the forts is today occupied by a unrecognized micro-nation called the *Principality of Sealand*.

There are two types of forts :

The first is a ensemble of four naval forts. As landmark references for shipping, these naval forts were built in the model of military grade bunker solidly locked into the ground. The process of building involved in sinking of the naval construction.
They are made of concrete construction. It is composed of a pontoon barge on which stood two cylindrical towers.

The second type of forts include larger installations comprising seven interconnected steel platforms with concrete column. Each platform is composed of 4 inclined legs.

They two types of forts where made as anti-aircraft defense. It has been reported that During World War II, the Thames estuary forts shot down 22 aircraft and about 30 flying bombs.

The location of the forts is strategic and made for one purpose, a military defense. However it is interesting to understand the technologies that have been developed to built in the sea and how they have been later re-appropriate for a more anarchistic programs such as a pirate radio.

Fig. 13 & 14 : Maunsell Forts, 1942. On the left the Sea Fort, on the right the army fort; both in active service
Guy Maunsell, Thames and Mersey estuaries, United Kingdom

INDUSTRIAL ARCHITECTURE : OFFSHORE CONCRETE STRUCTURE

As as an offshore structure the last examples chosen draw a parallel to the previous one, in a more radical way. Here it follows a highly mercantile logic of implantation.

The picture below shows an oil rig in the Norwegian sea. The Draugen oil platform operated by *AS Norske Shell,* is one of the more recent oil platform built in the late 1990's and takes place in the draugen field.
The draugen condeep consists of a one concrete mono-column of 251, 3 m long with an integrated deck on the top. Stabilized oil is stored in tanks in the base of the facility. Two flow lines connect the facility to a floating loading buoy.

An oil rig can be seen as an artificial island. It is probably one of the most colonial architecture ever built by human in the sense that it is one of the most invasive and foreign object that populates a place. It is the base of an all oil capitalist economy that strongly transformed our territories theses last decades. This is well described by the photographer Edward Burtynsky in his project *Oil*: *"We are drawn by desire – a chance at good living, yet we are consciously or unconsciously aware that the world is suffering for our success. Our dependence on nature to provide the materials for our consumption and our concern for the health of our planet sets us into an uneasy contradiction."*

The interest to show this example is partly to understand the paradoxical relation that this building has with a site and mainly to investigate the shipping process and prefabricated technologies used to built such thing in the middle of nowhere. Processes that could be apply in the case of remote islands.

In a certain point of view, an oil platform could be see as an ambiguous site-specific object. Indeed, its location has been very carefully chose as the result of precise and expensive researches to find the most efficient place where the natural oil reservoir will be the most accessible. The program is define by the specificity of the site (resources). The structure designed depends on the nature of the seabed as well as the climate conditions.

Fig. 15 : Draugen Oil Platform, 1993 Draugen oil Field, Norwegian Sea, Norway

5.2 - Essay on an architecture of imported vernacular

FROM TERRITORIAL READING

Imported vernacular comes from the territorial reading of the three islands.
This is where the analysis drove the research which concludes that there is a unconscious architecture emerging from the condition of remoteness. There is an aesthetic coming from the collision of two opposed logics, a vernacular architecture on one side and a colonial architecture on the other side, as a radical superimposition.
On these islands the lack of tools, machines, local materials, energy or skills (in any kind as a carpenter, an electrician, a builder, a plumber, a computer scientist, or even a doctor) create a dependency with the outside world. This embodies their fragile existences. The communities living in these islands can't survive without the importation of goods as well as they can't survive without the knowledge of their place. Indeed, any ecosystem can't exist without exterior exchanges.

Imported vernacular point out this condition : The use of vehicular technologies and standards materials that have been transformed, adapted through time to the specificity of a place.
For instance, in Tristan Da Cunha even what seems like the most vernacular element is imported: the flax, a plant that grows in the cooler region of the world, which is used a lot to protect the houses from the strong wind of the roaring forties has been actually imported from Saint-Helena which was previously brought from New Zealand during the 20th century. Livestock (Cow, sheep or chicken), fruit trees and vegetables have been also imported in each of the three islands by the first settlers (who were British military garrisons).

There is the vernacular logic of *As found*; the earlier settlers built their houses with the wastes of the shipwrecked vessels (wooden structure,ropes) and with massive blocks of volcanic stones.
However, which could be today described as vernacular constructions are actually made with very standards materials (standard doors and windows, bricks and metal sheet for the roof). It seems like the hybridization of the most standard prefabricated houses; as a mobile-home who would be re-built with the help of local materials.
If vernacular architecture is the quality of an architecture emerging from a site how do we call an architecture which is the expression of an imported culture transformed by the specific site ?

An architecture without-architect appears but it doesn't seem completely exploited. However, it is a potential for something else. Here, the thesis saw the possibility to develop an architectural language that would take an important part for a proposition of the future of the islands.

Why is it interesting to develop an architectural language ?

It achieves a goal : if the population are able to create their own architecture, they will be able to look towards a more self-sufficient community. It could be a possible answer to the questions of access, energy, trash, medical care, food sovereignty, resources exploitation.
Indeed, an architecture language could develop more reactive solutions to the difficulties that the isolated communities are facing in their everyday life. Thus it could become a proposition that will increase their resiliencies.
It can also address at the same time larger issues as synthesis of an architecture that doesn't denies the reality of a specific territory but takes part to the universalization of human society. An architecture that manages to merge local material with generic products; like the meeting of the most beautiful stone with the cheapest plastic. An architecture that is not afraid to be prosaic.

There are dangers in such intention; the pretentious believe that architecture can answer every problems and in the case of the three islands, there is also another risk that it would fall into a colonialist attitude.

An architecture of imported vernacular takes the shape of a small essay that tries to anticipate the project that will be achieve for the next semester.

The example of the picture at the right, Le Maison Tropicale[4] by Jean Prouvé in 1949 appears as an interesting parallel regarding the risk to fall into colonialism. Art critics and newspapers celebrates this project as a modernist masterpiece. The house was admired and displayed as an art object when it was shown in New York in 2007, outside the Center Pompidou in Paris or at the foot of the Tate Modern in London in 2008. It was seen as a manifesto of prefabrication, a technological perfection with an elegant industrial aesthetic that managed to answer the preoccupations of its time as well as the conditions of its implantation. A prefab

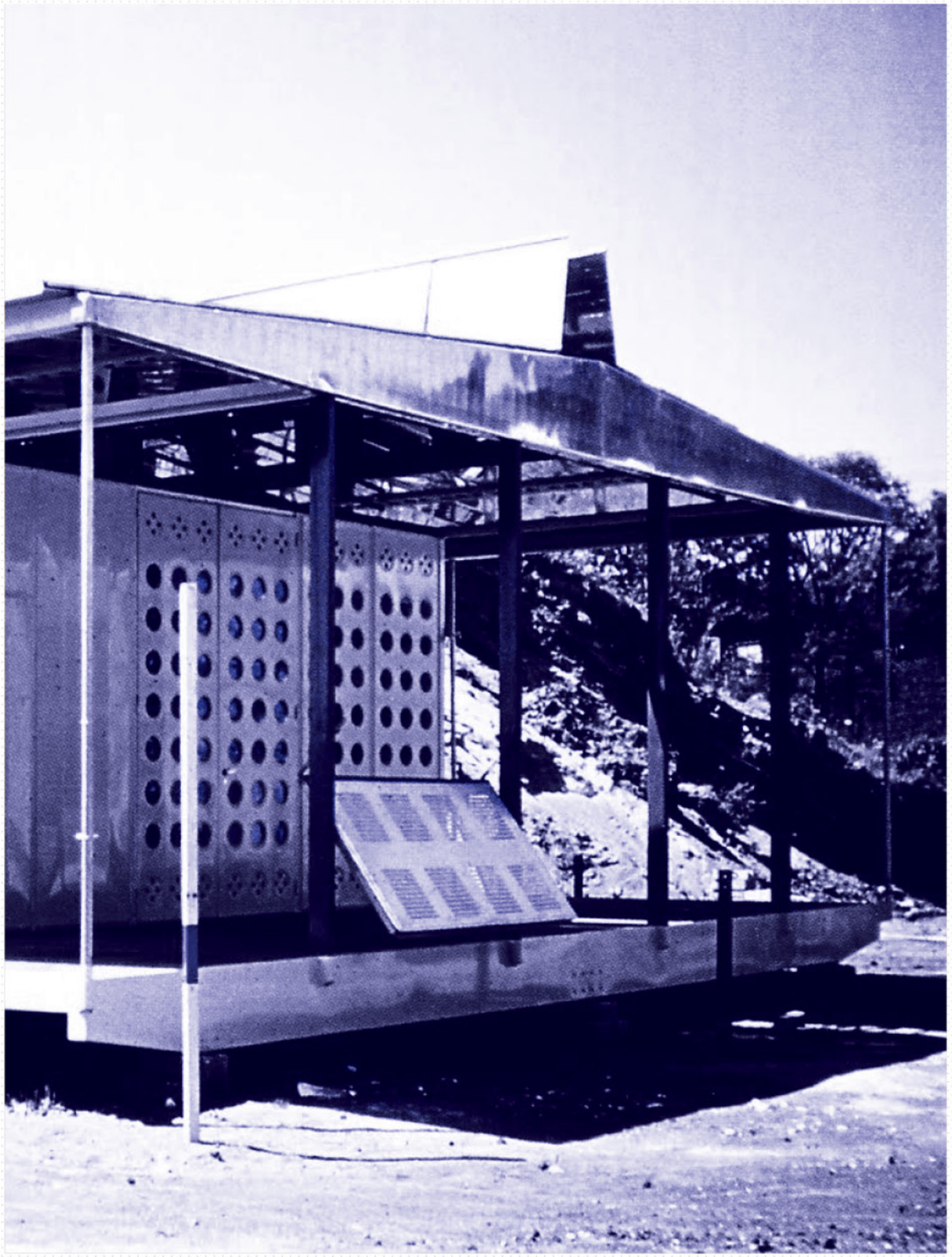


Fig. 16 : Jean Prouvé, 1949 *La Maison Tropicale*

house that don't fall into generic forms with common caricatural solutions.

"A large number of Maison Tropicales were planned to be built and transported from France to Africa. Therefore the houses had to be light and easy to assemble. This inspired Jean Prouvé to design a house that was made of prefabricated aluminum structures that could be easily constructed and dismantled. The framed structures of the house were also made to suit the tropical climate of West Africa, which led to Prouvé creating an inventive natural cooling system in the design. Due to its prefabricated components and innovative qualities, the Maison Tropicale became an exemplar of a modern standard type house. The functionality, rationality and standardization that characterized the project of the Maison Tropicale, make it an icon for industrial modernism."[5]

However as Isabella Rossen continues in his paper for the website *FailedArchitecture* in 2013 this project can be considered as a failure. Indeed, it is difficult to denied its unsuccess. Only three prototypes was built in Niamey (Niger) and Brazzaville (Congo), and the three become in state of abandonment few years after their completions. The initial plans in the late 1940s was supposed to be developed at a large scale with hundreds of modular housing.
The house never succeed to durably occupied its site because it represented a colonial architecture that seems designed for only one purpose : the support of the colonial French domination. It was based on Western building techniques and conceptually derived from the universalist philosophy of modern development.

Thus, the three prototypes became obsoletes, they were seen as an alien architecture, invasive and strange objects that the population never wanted or could appropriate themselves. This masterpiece failure shows us all the complexity to develop an architectural language. What posture to take when the designer is exterior to the place ?
Indeed, the research is made by two students who are also put in a position of colonialism, they are looking theses islands with a self-satisfied eye believing that they have the solutions for a place they have never been yet.
It is a risk that needs to be taken.

HYBRID PROGRAM, HYBRID AESTHETIC

The essay starts from the hypothesis that the persistence of isolated communities are intimately conditioned by their collaborations with an exterior organism.
As seen, in the chapter III, *Colonial*, it is the presence of a military base, a scientific station, a touristic program or a factory belonging to a foreign company that uses local resources.

The colonial architecture brings modern technologies, vehicular systems, often generic products.
It is also the manifestation of shared governance of the territory, between British administration and islanders.

An imported vernacular originates in the confrontation of an exterior program that populates a remote inhabited territory. Each colonial program is specifically linked to the territory for a strategic position, for the resources in place or for the presence of a wild untouched nature. Each colonial program are implanted in a place for a very precise reason.

However, an imported vernacular is not only compose of a colonial program. It is a hybrid between a colonial program and a communal program. When the first is related to outside actors the second answers the needs of the inhabitants. Thus there is a collision of these two programs in the same project. It is a synthesis following the logic of economy of means because the two programs facilitate each other, they complete each other, they cooperate each other. There is no need for domination between the two because they equally need each other to work.

Such a hybrid program will give an hybrid aesthetic. But what does hybrid means ?

To get straight to the point, hybrid is monstrous. To illustrate the concept we could perhaps look at the movie, *The Fly* [6] directed and co-written by David Cronenberg in 1986. It is the unfortunate hybridization of a fly with the eccentric and brilliant scientist Seth Brundle (played by Jeff Goldblum). During a crucial experience of teleportation (of the scientist himself) a fly goes in his machine, the *Telepod*. The Telepod computer, confused by the presence of a secondary life-form inside the sending pod, merged the scientist with the fly at the molecular-genetic level. The body of seth, the main protagonist, is transformed in an abominable thing, an hideous mutant. He slowly becomes a hybrid creature that is neither human nor insect, having the characteristics of the two.

Hybridization is thus an experience of the modern time that can lead to successes and failures. Indeed, many of the most important scientific discoveries came from the biggest laboratories accidents.

Hybridization is a human experience, it is a pure creative act, a temporary performance by the meeting of the two things that are not supposed to coexist, to match each other. Two ambivalent subjects that have been merging by a common need, in the same place and

in the same body.
It is a scientific experience, organic and analogue. It is closed to the most surrealist processes.
"*As beautiful as the chance encounter of a sewing machine and an umbrella on an operating table*" [7] wrote the surrealist artiste Comte de Lautreamont.
And Like the surrealist masterpieces, beauty can emerge from the chaos of the life.
It comes from a naive attitude and have to stay so. It is a conscious creative act where its result is not consciously predetermined. It is a fortuitous encounter that was scientifically established. The direct and radical meeting transforming two existing elements in a non natural object.

Thus hybrid is, by extension, artificial. This statement is interesting when we consider the earth as an artefact, an artificial object that has been transformed by human activities.
Could we also see the earth as an hybrid object ?

Hybridization doesn't pretend the be the solution of world's issues but try to understand the complexity inherent to our societies, landscapes and buildings which have be transformed by industrialization.

The aesthetic resulting from this collision have to be up to the power of the encounter. The aesthetic of an imported vernacular is not unequivocal, neither universalistic. It cannot pretend to be summarized with five points in the same way that Le Corbusier did with Modern architecture (Le Corbusier's Five Points of Architecture [8]). However, to go on with Le Corbusier reference, Imported vernacular could be understood in the same way that he put in confrontation the Acropolis with the Delage car (in *Towards an Architecture* [9]).

Imported Vernacular has no style, it is not a dictate but express a very clear opinion. By such it is not a incomprehensible draft, it is here as the marvelous encounter of two things. An ambivalent and subversive beauty that can be disturbing. There are with few layers of understanding, few layers of thickness; as well as the paintings of Dali, it can have a double meaning. The aesthetic of an imported vernacular tries to ponder questions as well as art can do.

At the same time, it is vernacular and colonial, adapting and dominating, ductile and rigid, generic and site-specific, craft and standard, indeed it is hybrid. Hybridization is not fixed in the time, it evolves because the process generates an adaptive shape. It includes the possibilities of evolution, of changes..
An architecture of imported vernacular is composed of very standards elements with a substrate of local materials. It follows a vernacular logic of implantation (as seen previously, mimicry, subtraction, aquatic, nomadic) with colonial methods of prefabrication and importation. It has the intelligence and the simplicity of a vernacular object with the sophistication of technological product.

An architecture of imported vernacular can be either a building, a landscape or a furniture because it doesn't have a pre-established scale. Indeed, it talks to a large meaning of architecture. However, because the thesis needs to be synthetic mainly buildings will be show for the essay.

Also, it includes all the steps of a project; from its conception to its construction. The shipping of materials, the techniques and machines used to build it as well as the designer who draw and the workers who build it.
A project based on a hybrid program doesn't work without the wish of the client. It is a collective project that can only work if economists, politicians or contractors share the same risk-taking tendencies.
Thus, such architectural project can take the shape of an adventurous collective experience, highly interdisciplinary.

LOGIC OF AS FOUND AND RE-USE

There are two layers of collision, the first is programmatic while the second is aesthetic.
The first is the hybridization of two opposed programs, a local program related to the needs of the community with an outside foreign program.
The second is the hybridization of two opposed architectures, a vernacular linked to the specificity of the place with a colonial which talks more about vehicular systems and technologies.

The logic of As found is based on the definition of the Vernacular in Chapter I. It is coming from the definition of Yvan Illic[10] after a discussion with the Prof. Pierre Frey. The logic of re-use which can be also linked to the logic of Bricolage is used in reference of the work of the prof.Tom Emerson[11] from ETHZ and his book *Never Modern*[12].

An architecture of imported vernacular starts from this substrate. It is an architecture that uses a certain quantity of material easily found on the place. It can be a local stone, wood, soil, clay, plant (like bamboo) however not restricted to that. As the example of the villages of Halong Bay, theses materials are not necessary natural, they can also be manufactured.
It concerns all the material that are available in a place.

Thus, the first step for a project of imported vernacu-

lar consists of a site investigation. A geological research seems essential not only to calculate the need for the foundation but also to explore what kind of material could be produced from the soil of the site.
The project *Red Line* [13] that delivers medical supplies in Rwanda's remote areas deigned by Norman Foster in collaboration with EPFL (Jonathan Ledgard) is an interesting reference. The structure of Drone-Ports are made of clay bricks that are assembled with the help of a prefabricated wooden frame and directly manufactured with two light manual machines. The red clay is directly taken from the ground of the site. The construction of such building needs only one small truck that brings the wooden frame with the two machines.
Because the process is very simple, the project is mainly built by the local population.
Besides the construction process, there is another interesting topic in this project. It is the use of high-technologies such drone systems that even the most richest countries in the world don't have yet. *"Africa is a continent where the gap between the population and infrastructural growth is increasing exponentially"* [14] said Norman Foster. Here the project point out the possibility to use technologies to fill the gap of modern development.

A project of imported vernacular looks at the localization of the nearest stone quarry or sawmill factory as well as the wastes of other architectures. For the last one, it consists of the re-use of old structures in ruin, pieces of machines not working anymore and even trash that can be burnt to produce the energy needs for the construction and also for the using. It starts for the idea that our landscapes are covered of layers of constructions like building in concrete, infrastructures in asphalt, systems of cables that have been accumulated through times and could be re-use. This is following to a certain extent the archaeological concept of palimpsest developed by Andre Corboz in his book, *The Land as Palimpsest* [15] and also shown with the 2012 Serpentine Gallery by Herzog & De Meuron[16]. The pavilion consisted of the superimposition of the marks of the eleven previous other pavilion that was built in the exactly same site.

This logic of re-use is also intimately linked to the skills of the inhabitants, the wish and ability of a population or a community to built its own things. In time of climate changes this attitude of *bricolage* is definitely ecologic.
However, the logic of *As Found* and Re-use cannot be the only solution in the case of the British South-Atlantic islands. There is not enough local material to build a project. There is no stone quarry or a proper forest to exploit in the areas and the soil is only composed of volcanic stones very difficult to extract without machines.

IMPORTED MATERIALS & PREFABRICATION

Then, another logic will need to be apply. It is the methods of prefabrication working with systems of logistic to import material. It will take advantage of the existing industrial sectors that is already available in a large area of the site project, which in the case of the three islands is the ocean, which can be considered at a global scale.
As seen in the chapter III, *Colonial*, the main complex constructions of the three islands (the crane of the port of Tristan Da Cunha or the airport of Saint-Helena for instance) are built with imported materials using standards methods of construction which in remote territories are very expensive because of the shipping and the lack of local skills.

The example of Quonset hut, a lightweight prefabricated structure of corrugated galvanized steel is an ideal example to illustrate the logic of prefabrication and shipping that can be apply in remote territories. With a semicircular cross-section and based on the Nissen hut model, the project was developed in United States during the World War II. Hundreds of thousands were produced in Quonset Point at Davisville Naval Construction Battalion Center (North Kingstown, Rhode Island, US). The hut designed as a very simple object made mainly with one manufactured material following a simple rule of structure. The most common design created a standard size of 6 m by 15 m with 3 m radius,that allows 67m2 of usable floor space with optional overhangs for protection of entrances from weather. This simplicity allow the hut to be very easily transported and dismantled.

To go back to the Jean Prouvé house, La Maison Tropicale, its cultural dominance appeared by the expression of a technological superiority using manufactured products from raw materials that were previously extracted from West Africa :
"It was assumed that European modern architecture was superior than local building styles and that French prefabricated housing was better suited to the climate than the local vernacular. Instead of using local building materials, the French promoted the use of aluminum, brick and cement. The French state-owned company Aluminum Français extracted raw materials from the West African colonies, which were refined into aluminum in France. This refined aluminum was subsequently used to construct Prouvé's Maison Tropciale. Taken from West Africa, this aluminum was returned to West Africa as a different, finished product – a product that showcased the "technical superiority" of the French."[17]

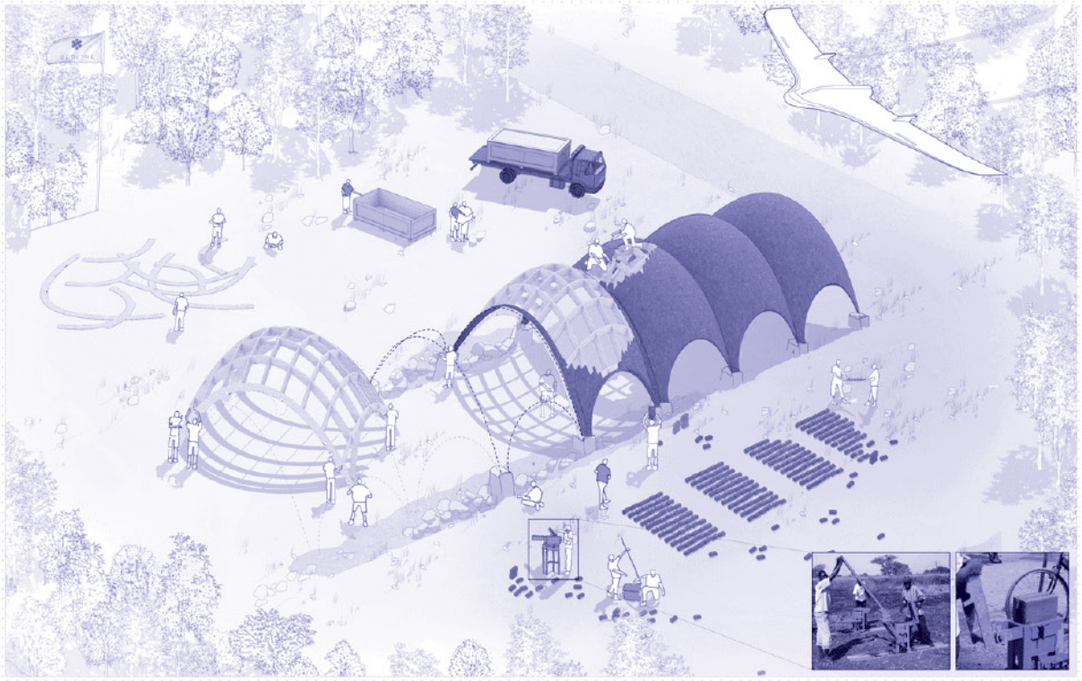


Fig. 17 : Foster + Partners with Jonathan Ledgard, Afrotech-EPFL, 2015 *The Red Line Project*

Fig. 18 : A Quonset hut being transported at the 598th Engineer Base Depot in Japan, post-World War II

Fig. 19 : Jean Prouvé, *Maison Tropicale*, unloading in Niamey, 1949, archive 230J Jean Prouvé

Beyond this absurdity, the most remarkable part of this project is how Jean Prouvé manage to develop very light elements easily movable with a high quality of details. Indeed, he developed very smart joints with light perforated aluminum panels to assemble the house in place. Most of architecture of Jean Prouvé were experimental, as an architecture somewhere between craft and standard. His design can bee sen as the combination of the use of rational and efficient methods (like metric system) coming from the most industrial processes with the creativity of an inventor which was half engineer, half designer.

However what appears as a main interesting part of the Jean Prouvé house is also the main the problem. The elements composing the house where too manufactured, too complex that it creates a strong dependency with a colonial power, in this case France. Indeed the only solution to replace a broken aluminum panel is to ask the French company who made it to organize a very expensive transport from France to Africa. This is not economically realistic in the case of remote territories.

A feasible solution would be to bring very simple manufactured materials such as panels of plywood or simple rectangular aluminum panels (without complex joints) to be cut out in place with small machines (like a Computer Numerical Control Machine, CNC [18]). The panels would be bring into the site in a very large quantity.
The implementation of such building process is now possible thanks to the miniaturization of technologies and automation. Manufactured object that once needed large spaces with all the range of skills to operate and tools could now fit in a pocket-sized tablet. As well as large computers became portable and heavy printer became micro printer spread out in all domestic environments, it is more and more possible to fabricate objects in small scale of production costing the same price of a standard object. Raw material can then be transported and stored in compact form following shipping process and assembled directly in site.

However this logic needs then to develop on site new skills in digital technologies as well as the learning to maintain these machines.
The example of the *WikiHouse* [16] projects illustrates well the new possibilities offered by digital technologies and by the miniaturization of machines. It also gives an idea of the feasibility of such architectural process today. *Wikihouse* is an open source design working with the same model of sharing of the Wikipedia community. 3D models are designed by users and shared in a common platform to be afterwards manufactured by CNC machines. Envelop and structures of small houses (a small garden studio costs the price of 14'500$) can be made with only one portable CNC machines and a package of standard plywood panels of 18mm thick .

BEYOND BUILDING PROCESS, A *PROTO-TYPOLOGY*

An architecture of imported vernacular is an architecture based on an hybrid program exploring hybrid aesthetics.
It is an architecture where its design has been precisely made for the specificity of a site, for its conditions.
It is an architecture that starts from a logic of *as found,* explores vernacular attitudes of implantation and uses vehicular logic of construction such imported material and prefabrication.
Thus an imported vernacular is not only about building process at the digital era, it tries to go beyond that to investigate the aesthetic that will be created out of such processes.

An architecture of imported vernacular emerges from the condition of remoteness as well as the examples seen in the typological part (Vernacular attitudes, Colonial programs). From the Greek Monastery to oil rigs, men have developed ingenious solutions to build an architecture in remote places. Human kind have used the most simple tools as well as the most technical machines to built a simple hut in the Asian Mountains or a concrete structure of 300m high in the middle of the Norwegian sea.

An architecture of imported vernacular has something that can work as a *proto-typology* rather than a prototype. Indeed, a prototype is a modernist notion imbued by the belief that there is one ideal model of configuration that can be applied in serial in whatever conditions. While, As defined by Andreas Ruby in *the Metapolis dictionary of Advanced Architecture. City, technology and Society in the information age*, a *proto-tytpology* [19] includes the flexibility and adaptability of the organization of a form. It is an heterogeneous object which can be changed and re-adjusted in short time for different contextual conditions.

Four examples will be used to illustrate the conclusion of the essay.
The first is a *Round barn*. A round barn is an agricultural building used for many purposes such as the housing of livestock and storage of crops that have been built in abundance in USA between 1880 and 1920. Its plan could be octagonal, polygonal, or circular and its structure was often design following the method of reciprocal frame (based on the repetition of one unique element). Its distinctive circular shape allows the barn to take advantage of gravity to move hay from the loft to the cow stable below. The round shape offers a greater volume to surface ratio than a rectangular shape, and therefore less materially intensive.
As well as a Mongolian Yurt its shape is also very interesting to resist against the high wind conditions and tornados of the American plains. Each round barn defined a generic prototype that have been transformed and adapted to specific conditions of regions.

The *Railway Sleeper house* by the Japanese architect Shin Takasuga is a house only built from wooden railway sleepers in the 1970's. Located on Miyake Island, a small island in the pacific ocean belonging to Japan, this house synthesizes old traditions and rigid modernism. Planned as both a retreat and a communal residential building, the house has to be built by lack of money with the re-use of this old standard railway sleepers.
Walls, floors, columns, roof structure and even furniture have been built with the same repeated object. As an inspirational achievement, the house shows how one only imported generic element with very rudimentary methods can generate an impressive spatiality. An architecture of high quality from very raw material. Here, the quality of railway sleepers, as a manufactured object, is its the possibility to be easily re-appropriated.
The *Makoko floating school* built by NLE architects in Lagos, Nigeria built in 2012 shows how smart architecture can emerge from the one of the most dense and poor slum in the world. As an aquatic architecture, the structure follows a very simple triangular shape and floats by the help of standard blue plastic barrels. Here again, a logic of as found has been applied as the ingenuity of *bricolage* processes.

The last reference is a series of houses built by the Australian architect Glenn Murcutt between 1970 and 2000.
Theses small objects achieve to hybrid a vernacular aboriginal architecture with the use of industrial materials such as steel beams, metallic mesh, glass, pipes or solar panels. It somehow synthesizes what aesthetic an architecture of imported vernacular could generate.
The results give an unusual aesthetic from an astonishing simplicity.
A beauty as a tribute to the old aboriginal population which have been maltreated during centuries. It is neither colonial or vernacular because no one shows a domination. The project seems to be made from the synthesis of the two opposed architectures that help each other to create an unexpected form.

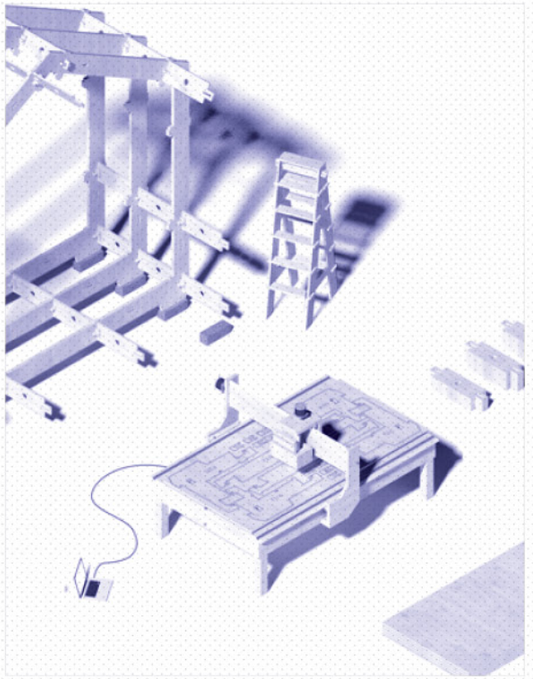


Fig. 20& 21 : WhikiHouse project, on the left diagram of the process with the 3 steps of construction : importation, cut out in and assembly

Details of a prefabricated wooden beams made from plywood panels. A new aesthetic is emerging.

Fig. 22 : *A round Barn* that can still be found in the U.S. This example of round barn has a circular plan with on the top a natural ventilation system and sky-light openings.

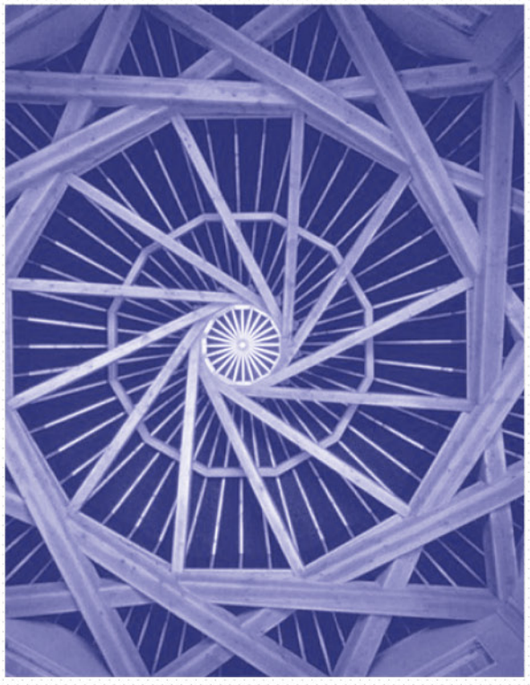


Fig. 23 : Reciprocal Frame, Roof of Ishi Kazuhiro's theater in Seiwa. Each pieces sits on the back of another can carries another on its back.

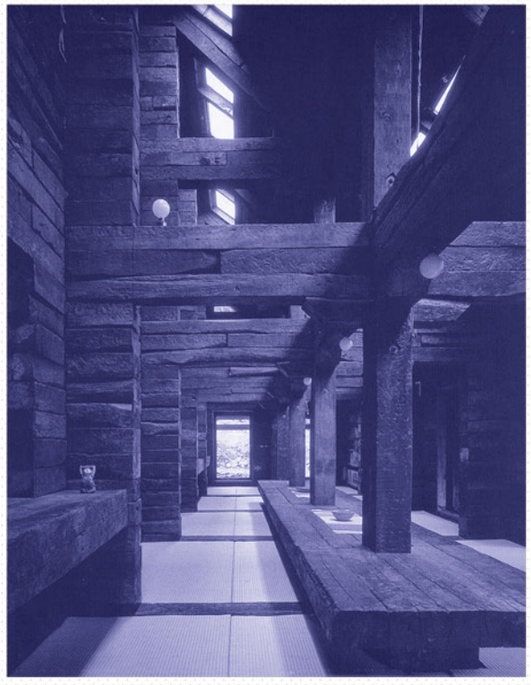


Fig. 24 : Shin Takasuga, *Railway Sleeper house,* Miyake Island, 1970' The house was built by using only old, wooden railway sleepers.

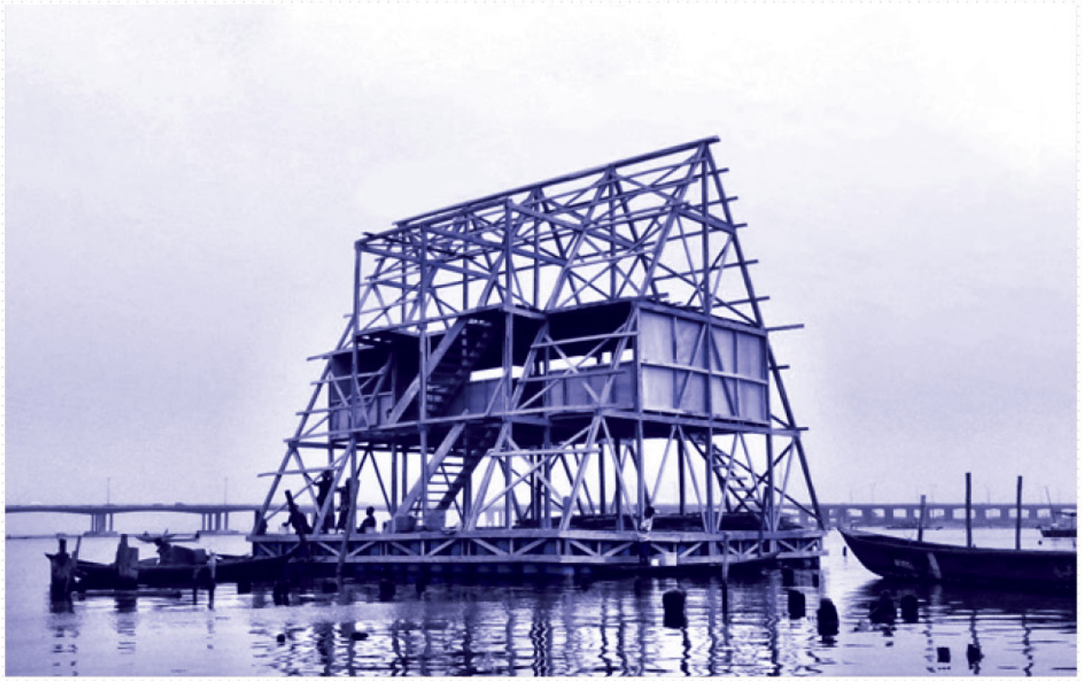


Fig. 25 : NLE Architecture, 2012 *Makoko Floating school*, Lagos, Nigeria, photograph by Iwan Baam

Fig. 26 : Glenn Murcutt , 1994 *Marika-Alderton House*, Yirrkala Community, Eastern Arnheim Land, Australia

6.1 - Issues & potentials of Tristan Da Cunha

TRISTAN DA CUNHA AS *PROTO-TYPOLOGY*

As recommendation for the next step of the diploma, this last chapter will drive the research to the state of experimentation. Indeed any theory needs to be tested in practical situation. The chapter will define issues and potentials that can be explore at Tristan Da Cunha which seems as the ideal site for a future projection.

Regarding the study of the three islands that the research has been through it didn't seem convincing and relevant to explore the possibility of a territorial constitution in the scale of the three British South-Atlantic Islands. Indeed such territory, which is an ocean, doesn't really define a region, the distances between the islands are two far to establish an interesting common strategy. However, they are each put in condition of remoteness under the same colonial power. Thus they can be seen as models of development for a more generic situation of isolated territories. Here, development doesn't mean to go necessary for an economical growth but to reach a state of ecological prosperity.

To establish a project on one of the three island, it is essential for the credibility of the work to understand how such experimental project in isolated territory can be justified and funded.
The thesis proposes then to establish for the next step a fictive initiative which will gathers all the potential investments from United Nations (which was at the base of the *Makoko Floating school* project seen previously), European Union or United Kingdom government.
Not as a scenario of green business development, but as the development of a subversive hybrid project of both colonial program and local program.
It includes also a long term schedule of design process.

Following the comparison of the three islands and their resilience degrees, it appears that the most accurate island to develop a project of imported vernacular is Tristan Da Cunha. It is the place where the expression of the resilience is the most radical, thus the most interesting to investigate. A place where the vernacular architecture and the colonial architecture are already in a first state of hybridization. A place where an architecture of imported vernacular will have the most chance to succeed.

Furthermore, the archipelago of Tristan Da Cunha is also the place where a lot of very interesting issues such as Access, energy and trash needs to be save. A place where an architectural project makes really sens.
Tirstan Da Cunha is thus, a *proto-typology* for the research.

The feasibility study will look at two scales to define issues and potentials at Tristan Da Cunha and to establish an hybrid program. The first one is located at a micro scale linked to a local program while the second one is at a global scale linked to a colonial program.

The description of the main issues at a local scale allows us to define which kind of colonial program could fit on site. It is also very important to define what are the potentials of Tristan Da Cunha at a larger scale that will justify the implantation of a program.

RIBA COMPETITION

In March 2015, the Royal Institute of British Architects (RIBA) launched a Design Ideas Competition on behalf of the Government of Tristan da Cunha, and its administrator Alex Mitham. The first phase is completed and now 5 schemes have been selected for the second phase. Because of schedule matters, the project for the next semester couldn't take part to the competition but will be achieve in parallel as a possible alternative.
The aims of the diploma project would be to take the opportunity of a journey at Tristan Da Cunha on next September 2015 to present the results to the administrator of the island.

Below is the introduction of the competition brief :
Life on Tristan, as in any farming/fishing community, is ruled largely by the weather. Daily life involves tending to livestock and crops in a timeless routine, mixed with seasonal activities such as shearing, digging, planting and harvesting. The Islanders rely to a great extent for their food on their own stock, poultry and crops. Potatoes are the main crop, grown at the Patches about two miles from the settlement. Other vegetables are also grown privately.

The competition brief starts to summarize the two main sources of employment of the island : the governmental departments and the fishing sector both linked to colonial programs. Fishing is the primary source of income generated via a royalty agreement with a South African-based company .

Tristan's economy is however shrinking and the cost of living continues to rise. Large capital projects require overseas funding - for example, the European Union recently funded new electrical and water reticulation systems for the Island. In order to avoid becoming reliant on budgetary aid from the UK, it is critical that cost-effective long-term solutions are found to improve the community, to make buildings energy efficient and reduce the living costs of the Island's population. It is also important that key structures such as Calshot Harbour (or its future replacement) and irrigation systems are able to deal with future demands on the society.

Here, the brief point out the necessity of more self-sufficient economy for the island and the need to find architectural solutions to answers this challenge.
Eventually, the brief focuses on a series of topics (buildings and activities) that are crucial to integrate in this competition. Competition that includes the complex constraints of an isolated territory :

- Government Buildings
- Residential Properties
- Water
- Energy
- Agriculture
- Expertise
- Calshot Harbour

A PROTECTED NATURE

The Tristan Da Cunha archipelago hosts two Nature Reserves (Inaccessible Island and Gough island) comprise as UNESCO World Heritage Sites. Furthermore, the Exclusive Economic Zone of the archipelago represents an area of 754.72 Km2 in the middle of the South-Atlantic Ocean. If it is established as a protected area it could become one of the main untouched Marine reserve of the world with an high values for scientific investigations.
Since the last decades, the protected areas which were originally conceived to conserve iconic landscapes and wildlife become more and more able today to achieve an increasingly diverse set of conservation, social and economic objectives.
However, *"Financial support for protected areas is dwarfed by the benefits that they provide, but these returns depend on effective management. A step change involving increased recognition, funding, planning and enforcement is urgently needed if protected areas are going to fulfill their potential."*
The definition of a marine reserve around Tristan Da Cunha archipelago could be an interesting solution regarding the island's issues. Indeed, a marine reserve cannot word without the help of a local community in place and the community could profit from the values of such protected area.

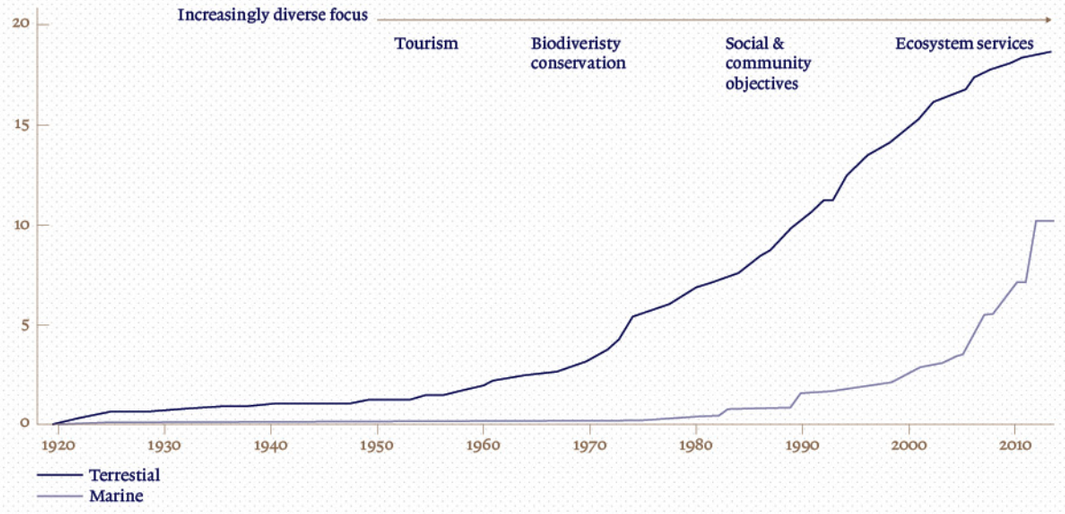


Table 1 : Growth of terrestrial and marine protected areas

POACHING AND NATURAL RESOURCES

Tristan Times, *Poaching Threatens Tristan da Cunha's Hurricane Recovery* - June 12th, 2005
by J. Brock and Sarah Galss :

"Any way you look at it, poachers who steal Tristan da Cunha's lobster as well as other maritime resources and offload them in Cape Town have cost the people hundreds of thousands of pounds a year in lost revenue.

When tourists visit Tristan many remark that with a valuable fishery, the infrastructure can be a lot better, with a harbour that is more accessible and safer to land people and cargo. However, it is the theft of Tristan's resources that has prevented them from reaching their full potential, not only with the harbour but also with Medical Care, Education, Pension Benefits, Roads and other infrastructure.

In May 2001, Tristan da Cunha was hit with a hurricane that severely damaged almost every building on the Island. DFID in London responded by giving the island 75,000.00GBP, to help restore Government Buildings that were damaged in the storm, but the repair bill for the islanders far outreached that amount, and friends of Tristan matched that from private contributions, to help the islanders privately. However if there were no poaching in Tristan's waters, the bills would have been paid a long time ago, and the Tristanians would not be continuing to draw down on their reserves approximately 200,000GBP every year to keep the island functioning.

A British registered Fishing Company operating out of South Africa that is contracted by the Tristan Government to do the fishing also patrols the Economic Zone that surrounds Tristan da Cunha and Gough Island, approximately 230nm to the South East. But Fisheries Officials on Tristan say that on the management side, it is frustrating to set a Total Allowable Catch (TAC) at the lower end of the replacement range to allow for the amount of resource that is expected to be stolen each year.

Two major challenges for the Tristan Fishery are poaching and access to European markets. Seeing that the EU not only wants quality but also quantity to serve their market for the product, it is the poaching that prevents that access.

Action needs to be taken sooner rather than later to stop poaching around Tristan da Cunha so that the Island can pay their own way for the recovery of infrastructure that was damaged five years ago, and to stop expenditure being more than revenue.

It is well known that fishery patrol is expensive. And, with limited resources, Tristan da Cunha cannot afford a Rolls Royce service. However, a good fisheries patrol system spread between the Islands of Ascension Island, St. Helena and Tristan da Cunha could be well within a joint budget. It has been reported that in the Falkland Islands that the cost per patrol boat is £5,000.00 a day. This news was rather off putting for fisheries officials on St. Helena but according to the Falklands Director of Fisheries, the job could be done for a lot less. In truth, the per diem rate for a fisheries patrol vessel needs to be extremely less in order for it to be affordable for the Islands along the South Atlantic Ridge.

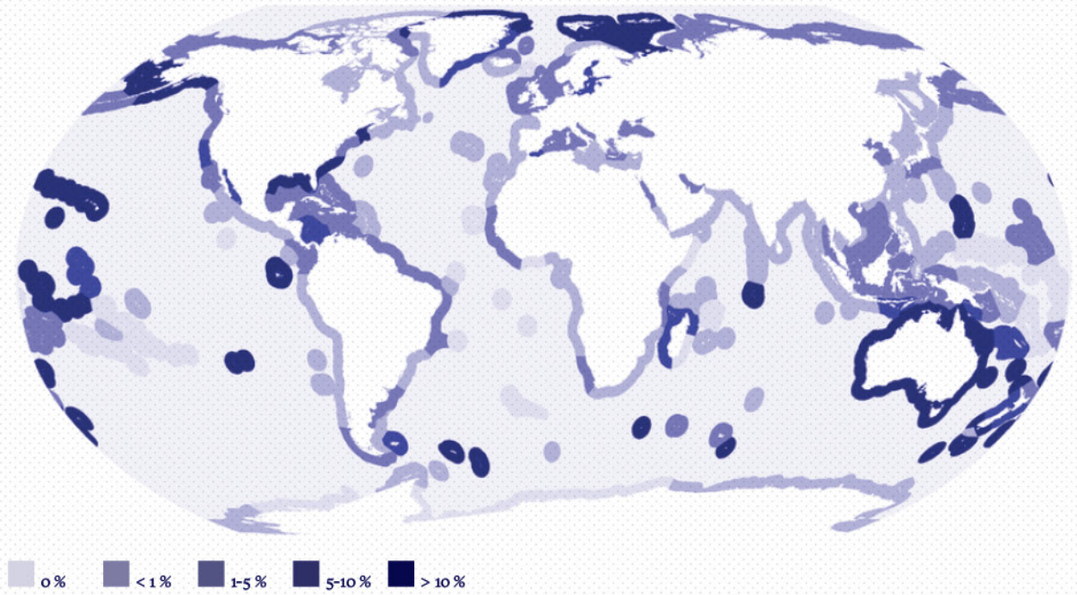
There are several options available including converting a captured poaching vessel with a fast engine to do the task and crewing it with locals who have the proper qualifications. Nonetheless, it is with the co-operation of the other South Atlantic Ridge Islands and advice from neighbouring fisheries, such as the well-managed one in South Georgia and the South Sandwich Islands that will augment the project and help these Islands regain control over their own fisheries.

Calshot Harbour is potential spot for a better harbour complex, Fishing related activity of Calshot Harbour, Prince Philip Hall damage inside that has only recently been repaired, Prince Philip Hall just after the hurricane. This important community center had its roof removed and replaced and was out of action for nearly five years."

A SCENARIO AT DIFFERENT SCALES

As described in the RIBA brief the situation has lightly evolved since this article published the *Tristan Times* (the local news paper) in 2005. This is mainly why a competition was launched.
The system of patrol in place today is still not efficient enough to protect the natural resources against poaching.
A project at Tristan Da Cunha seems to engage a scenario at different scales with a variety of actors, issues and governances. An hybrid program that includes in the same project local issues with larger problematics could be interesting to develop.

On one side, there is an island looking for self-sufficiency while on other side there is a vast natural area that needs to be manage and protect in a more efficient way.

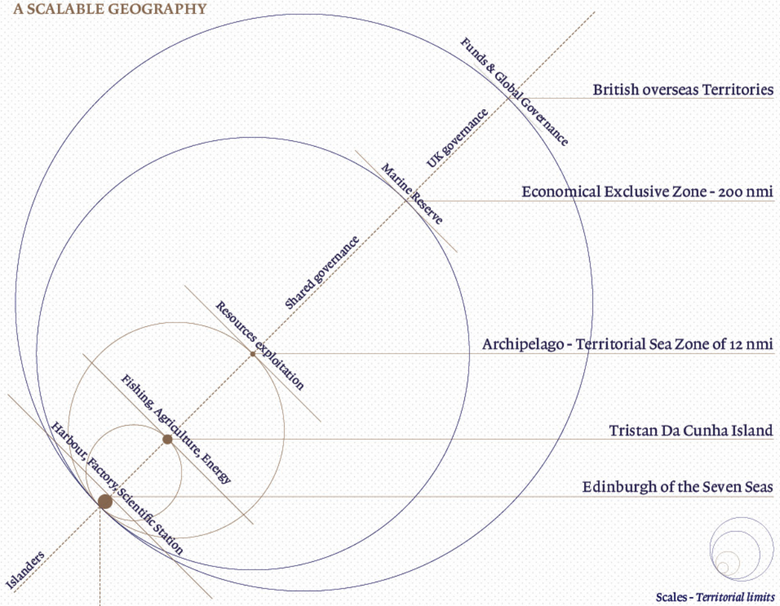


Diag. 1 : Percentage of Marine Eco-region represented in 2014

Fig. 1 : Illegal fishing vessel Picture took by the U.S. Navy in the Indian Ocean, 2015

6.2 - Scenario & program

A SCALABLE GEOGRAPHY



Scales - *Territorial limits*

Project - *locations & repartition of the program*

HYBRID PROGRAM

Local program

Towards a self-sufficient community

- Energy production
- Construction factory
- Administration and residential buildings
- Fishing & Agriculture facilities
- Water feature

Colonial program

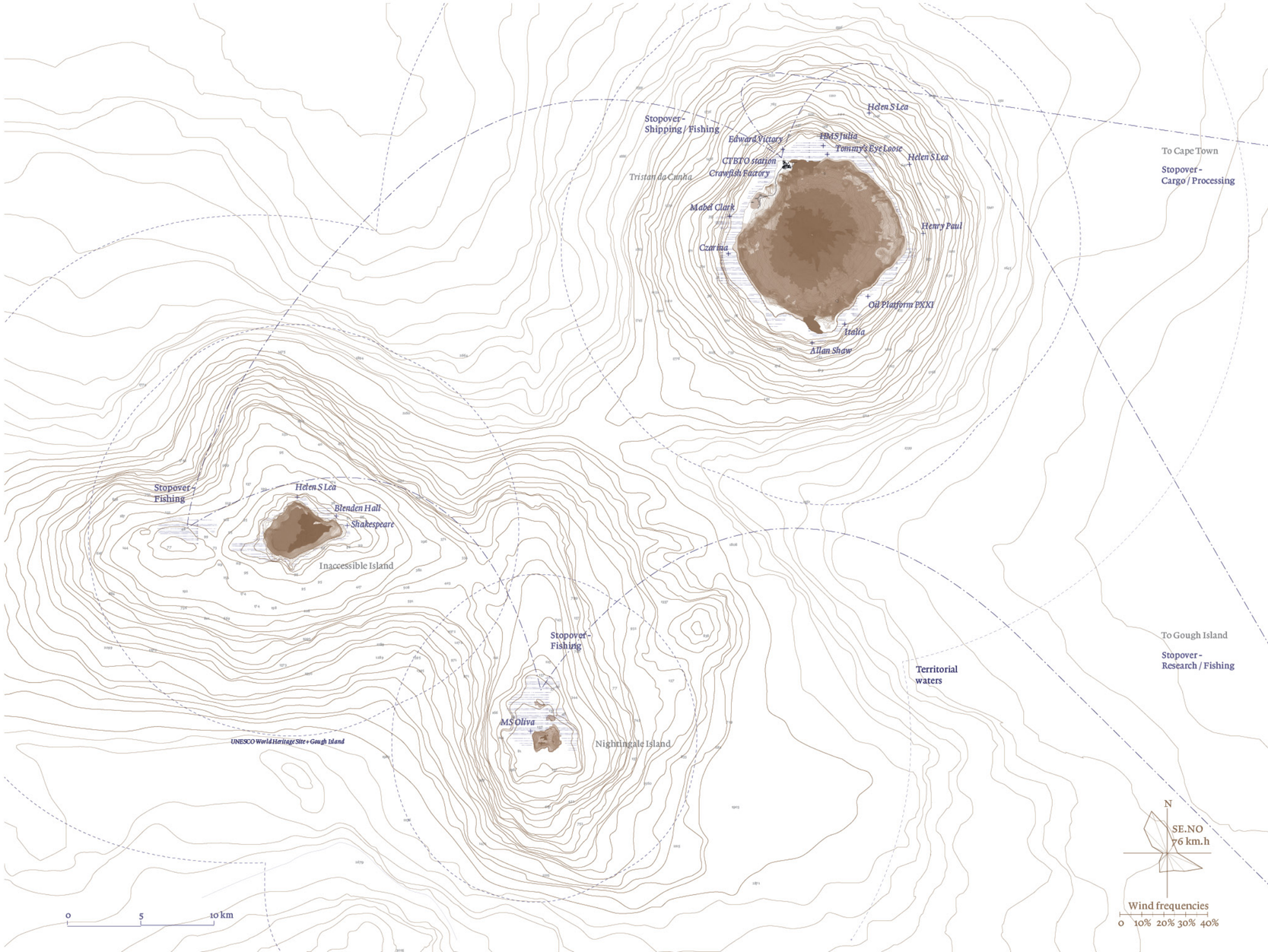
Management of a major marine reserve

- Fishing company with scientific patrol team
- Lighthouse and harbour
- Shipyard for maintenance
- Water supply
- Micro stations for surveillance

Fishing spot

Diag. 2 : An hybrid program within a scenario at different scales

Tristan Da Cunha Map - *Site project* 1/250'000



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"Numerical control (NC) is the automation of machine tools that are operated by precisely programmed commands encoded on a storage medium, as opposed to controlled manually by hand wheels or levers, or mechanically automated by cams alone. Most NC today is computer (or computerized) numerical control (CNC) in which computers play an integral part of the control." Wikipedia

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"Just as the prototype anticipates a product yet to be developed, the proto-typology represents a typological configuration in a permanent state of evolution. Whereas a conventional typology defines a generic model of organization, which becomes specific through its application, the proto-typology is specific from the beginning. On the other hand, it never really become generic as it continues to transform itself through the information it receives. As a pliable learning matter its adapts to the changing needs of programs and users. Hence, a proto-typology is not a model, but a transient phase of an evolutionary process, and therefore always ahead of its type."

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South-Atlantic Islands
The Resilience of Isolated Territories :
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Vernacular and colonial are usually represented as fundamental opposed concepts. The first emerging from the specificity of a place, as paradigm of local cultures intimately linked to their territories. The latter tied to foreign cultures, as an invasive system, vehicular of a modern world.
The thesis accepts that both might merge to create synergies in order to answer challenges of our time.
However, reality is quite different, the colonization brought globalization where any local culture tends to be standardized by the logic of mass production.

During the last century human societies have been created, at an increasingly accelerated pace. We have created buildings, landscapes and machines that denies collective reality and natural conditions. Earth became a place dominated by human productions but we don't seem to be able to control anything, especially the climate. The recent multiplication of natural and man-made disasters are the witnesses of these climate changes.

Isolated territories, such as Saint-Helena, Ascension and Tristan Da Cunha, three remote South-Atlantic islands are the ideal locations to address this topic.
Indeed, these British islands of volcanic origin, are places able to synthesize the opposition between nature, culture and modernity. Without any previous indigenous, these islands have been artificially colonized during the 16th century by British settlers for a strategical purpose. Because of remoteness and extreme conditions, the three islands developed through time different degrees of hybrid cultures linked to both vernacular and colonial architectures.

On one hand there is the necessity of an environmental adaption and on the other hand there is the high dependency to a colonial power, in our case United Kingdom. Based on this reading, the research proposes to explore the potentials of an architecture that could emerge from the binary opposition Vernacular versus Colonial: An *Imported Vernacular* as a tangible support toward the self-sufficiency of isolated communities.

1'400 € is a price one cubic meter of concrete in Tristan Da Cunha which is ten times the average price on the mainland. That makes it the most expensive on earth.
It takes 8 days by boat to reach the island, which lies at 2'000 km from the nearest inhabited land, Saint-Helena. And It is the only way to get there.

If vernacular architecture is the quality of an architecture emerging from the specificity of a place how do we call an architecture which is the expression of an imported culture adapted to a specific site ?

Ultimately, the thesis investigates how modern transformations and technologies could be beneficial to a local culture in order to face their spatial challenge.