Project Book
ARB301 Thesis
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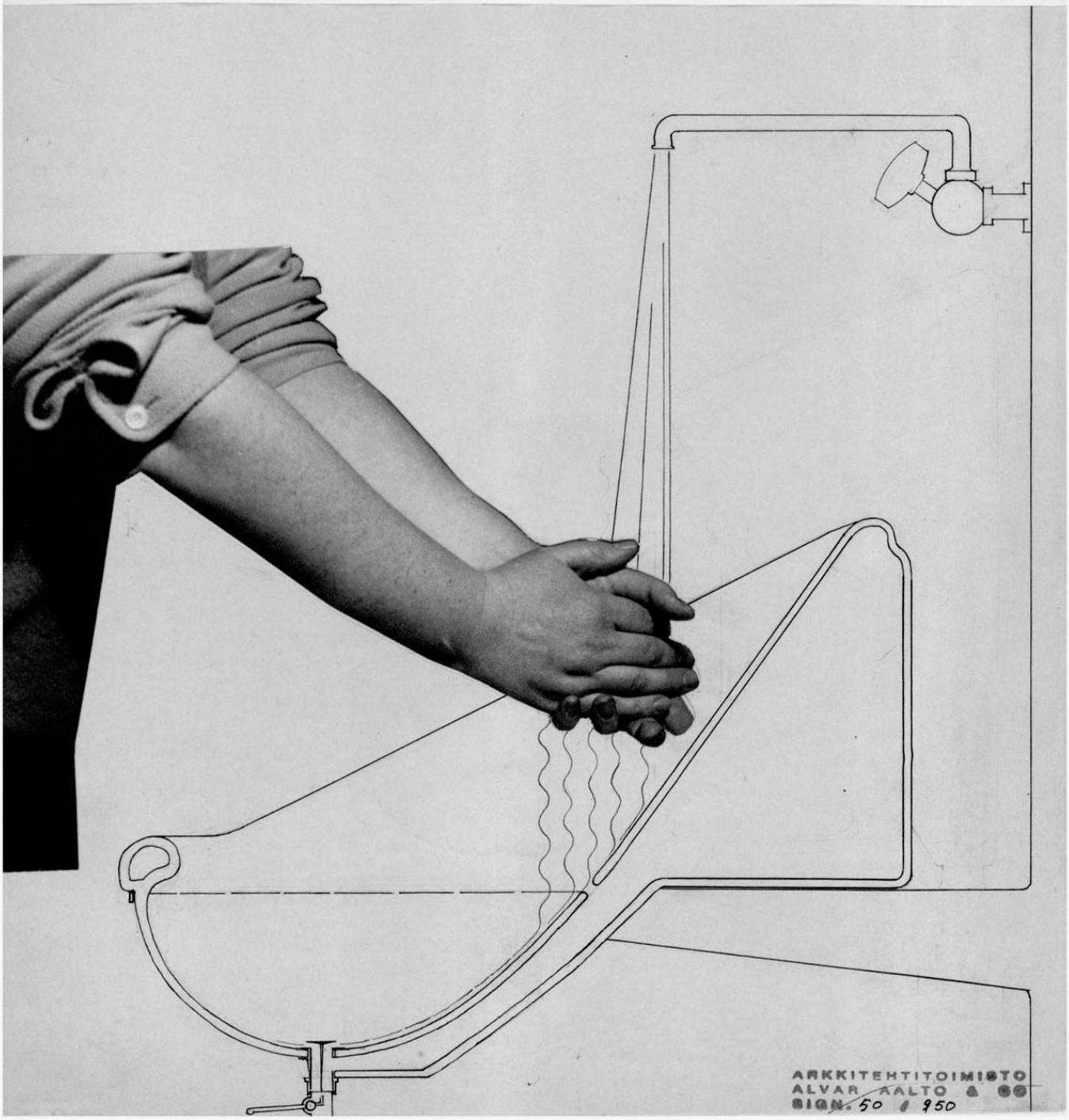
The Berlage Center for
Advanced Studies in Architecture
and Urban Design

Hospitable Hospital

noiseless wash-basin

No noises, no water splashes when washing your hands in running water, because the basin-china is in position of 45 degrees.



A. Aalto, Drawing of noiseless sink, 1932

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Abstract

This project proposes Gibraltar as a healthcare destination.

In the tradition of the Swiss Mountain open-air sanatoria, it has both a strategic location - local healthcare legislation, economic incentives and infrastructural development between southern Europe and youthful north Africa, isolation from the chaotic city - and natural features – positive climate (300 days of sunshine a year), sun, green slopes, sea views, fresh winds and air, quiet streets.

In the peaceful ambience of the mighty Rock and only a short walking distance from the Royal Naval Hospital, a group of sheltered housing with primary surgical facilities (emergency, OT, imaging) aspires to renovate hospitalization, making the transition from home to hospital imperceptible. Therefore, its secluded and natural location in the southern edge of the Rock allows the thirty living units to provide both a physical escape from the usual impersonal medical environment and the isolation that often occurs during and after long-term hospitalization.

Specifically the proposal focuses on the design of a long-term residential pediatric center, targeting young patients and families travelling far from their homes to specialized hospitals. Hence, the project deals with the collective hypotheses in the following ways: exploiting the ongoing and forecast infrastructural connections respectively from and to Europe and Africa, taking advantage of the recent geopolitical condition, imagining the architectural complex in an upper area that will not be affected by sea level rise, serving the population demographic expansion but maintaining the same universal language, that is english and, finally, strenghtening Gibraltar's character as an attractive place to live.

Architecturally, the complex stretches bottom-up providing an experiential journey, from medical processes and their common spaces and public healing garden (the Rock itself), to rest, independence. Medical and domestic are, therefore, spatially interconnected thanks to three features of the newly designed environment: the digitalization, the robotization and the miniaturization of the medical equipments.
In sum, this social-architectural project aims at reaching privacy and dignity especially through its small and human scale.

5 Propositions

- The location, scale, climate, and characteristic of Gibraltar make it ideal as a healthcare destination or hub.

- The design of a multidisciplinary surgical and long-term residential pediatric center will strenghten the peninsula's economy and serve young patients and their families both from the region and abroad.

- Challenged by the rapid changes of modern society, a redefinition and an update of very long-established concept of hospital is required.

- Secluded areas on the Rock have the potential to create new social and architectural situations where ideas of domesticity and medicalisation can be recombined.

- Privacy, spatial quality, and dignity remain the essential design consideration of both domestic and healthcare spaces.

Francesca Giudetti [IT]











As Found Propositions

Photographs from authors during fieldtrip in Gibraltar, June 2019

Beyond the Rock

Spatial interventions define and are defined by flux. Fluxes manifest in infrastructure, urban arrangements, buildings, and rooms, guiding, directing, and facilitating our movement. Simultaneously, the practice of movement defines our perception of space. On land we orientate through boundaries, borders, obstructions, and divisions between fields, regions, and states. At sea, our position is determined by intersecting lines of connections through distant objects, creating reference points and networks.

Gibraltar—a small peninsula on the southern tip of Europe—has been one of these reference points for many years. The stable presence of the Rock has been central to many stories, myths, and projects—from the Pillars of Hercules to the dream of Atlantropa. The 421-meter-high limestone formation has been a reference point for sailors, a strategic location for military garrisons, and a crucial stopover for migratory birds and insects. Gibraltar is therefore associated with being a stable, static, and steadfast small town, where one only ends up by virtue of circumstance.

However, Gibraltar is anything but stagnant. Surrounded by water, the territory is part of a global trading network characterized by the movement of cargo, passengers, and migrants. It lies in the midst of the Strait, to which the peninsula lends its name, which defines and unfolds the dynamic, fluctuating, and ever-changing condition of the territory.

As maritime choke points, continental straits determine the rhythm, capacity, and intensity of shipping patterns. Located between two polarities, they pose an inherent condition of tension, conflict, and imbalance. As such, straits channel and catalyze flux. Where there is difference, there is flux; where there is flux, there is dynamism. The Strait of Gibraltar, too, can be understood in such terms—strategically located between two continents, it separates the Atlantic Ocean from the Mediterranean Sea. On its edge lies Gibraltar—the entry point to the Mediterranean.

Gibraltar is a relatively unimportant yet historically significant entity; the peninsula is a mere 6.8 sqkm with 33,000 people living almost exclusively on the west side. Around 250 Barbary macaques and many other species live or stopover in the Upper Rock Nature Reserve, covering 36% of the land. Gibraltar is still crucial in its wider context. Over the course of history, the seemingly insignificant territory has been fought over, conquered, isolated, and reconnected by many. Early Islamic settlers from 711 AD conceived of the city as a fortress; in the sixteenth century the old town started to extend from the Moorish Castle, and the following centuries saw Spanish and Anglo-Dutch troops taking hold of the Rock. Their defenses, moles, batteries, and bastions shaped its surface, while tunnels and excavations shaped the interior of the Rock.

When the end of Great Siege (1779–1783) temporarily stabilized tensions, Genoese, Portuguese, and Moroccan merchants made their way to Gibraltar to make their fortunes at this British trading outpost. In the nineteenth century this multicultural community expanded the city into reclaimed land and onto the Rock, leaving their architectural marks on the city. Today, Gibraltar remains a British Overseas Territory but with separate legal jurisdiction. It is said that as long as the monkeys stay, the British won't leave. But that, soon, might change. Could we reimagine Gibraltar as an autonomous territory?

Independence and Interdependence

Gibraltar is not an island, yet it is prone to isolation. Without any natural resources, the peninsular is highly dependent on its relationship with its surrounding context. This has put tremendous pressure on its border—a 1.2-km-long threshold beneath the Spanish town of La Linea. As Gibraltar is highly dependent on imports and cheap labor from Spain, obstructing this frontier can have a dramatic effect on Gibraltar's economy. As such, it forms an important bargaining tool for its neighbor.

Since the 1713 Treaty of Utrecht officially assigned Gibraltar to the British, Spain has tried to reclaim the strategic outpost by force and persuasion. Gibraltarians, however, want to stay British; in the 1967 sovereignty referendum, a massive majority of 99.6% of Gibraltarians expressed their eagerness to remain under British rule.

As a response, Spanish dictator Francisco Franco restricted all forms of trade and traffic across the border, leaving Gibraltar with no other option but to turn to northern Europe and Africa for help. For 16 years, until the border fully reopened in 1985, the UK, the Netherlands, Portugal, and Morocco provided the territory with food, water, medical oxygen, and construction materials by sea and air. Franco's actions also forced Gibraltar to look inwards, identify its strengths, and make alliances to overcome its weaknesses.

Following the reopening of the border, the government of Gibraltar actively rebuilt its economy by accentuating its differences from its surrounding context. Over the past four decades, three major industries have emerged—in the 1990s tourism and ship refueling (bunkering) began to account for a significant daily in– and outflow of both people and ships. Financial services then emerged as another major industry after beneficial tax policies implemented in 2009 attracted foreign investors and online gambling enterprises. The boost to employment and general shift towards high-end residential development has brought a significant temporary population increase in recent years, mainly from the UK. These have negated some of Gibraltar's dependencies, but the built environment is still highly dependent on Spain.

Up to 12,000 tourists a month at the cruise terminal, peruse Main Street, and take the cable car for a quick visit on the Rock to illegally feed the monkeys, while 15,000 workers cross the border from the neighboring Spanish town of La Linea every day.

With limited options for urban expansion, the local construction market is highly competitive. Fast-paced developments arise on reclaimed land and former British military grounds, over which the local authorities have little to no control. Often initiated by Spanish contractors and private investors, building culture is characterized by a case-by-case system with little room for architectural innovation. In turn, Spanish urban planning culture restricts Gibraltarian architects to their familiar territory.

How can Gibraltar expand its architectural context and open new doors for its architects?

Five Propositions

1) Geopolitical Shift

While the political situation of the European Union and the United Kingdom are destabilizing, Gibraltar finds itself in an ever-more vulnerable state.
However, opposite the Strait in Morocco and Algeria, solar and biomass energy sectors are rapidly evolving.
They are likely to result in large-scale urban and infrastructural expansion, creating major investment opportunities in northern Africa.
In this projection, Gibraltar aims to monetize these opportunities by shifting its gaze to Northern Africa, plugging into the energy circuit south of the Strait.
As such, Gibraltar's potential, importance, and territory are no longer defined by its administrative borders, but rather in relation to the networks it operates within.
What could be the repercussions on the local building culture of Gibraltar?

2) Infrastructural Connectivity

If Gibraltar wants to gain control over its precarious condition then one thing is inevitable—connection.
As new and improved infrastructural connections create opportunities for investment and expansion in and around Gibraltar,
improved connection to Morocco enhances the capacity of energy, freight, and capital flows across the Strait.
Gibraltar's beneficial tax policies make import through the territory appealing for both Europe and Africa,
accelerating urban expansion and economic growth in nearby cities.
For Gibraltar specifically, the change means that the territory transforms from a geopolitically insignificant peninsula to a crucial node in the intercontinental trading network.
How can Gibraltar exploit this new nodal condition, and how can architecture assist that?

3) Gibraltar as Destination

A transport hub integrated within Gibraltar's urban tissue concentrates all traffic and freight, distributing the flows along and across the territory.
By expanding its context to Africa, economic opportunities attract migration from its surrounding area, creating potential for Gibraltar to become more attractive to investors, tourists, and residents. Additionally, the optimization of ferry routes between Africa and Europe enhances the overseas connection for passengers.
How can spatial strategies accommodate and optimize these new and intensified fluxes?

4) Population Growth and Urban Expansion

When financial opportunities open up, people from other countries arrive to reap the rewards.
Improved maritime connections and accessibility strengthen the capacity, speed, and frequency of traffic across the Strait, and are thus projected to bring a substantial population increase —laborers from Northern Africa and investors from China are shifting their gaze from Africa up to Gibraltar.
To accommodate this population increase, Gibraltar is projected to expand and densify into the sea as well as on land, following its existing strategies of long-term planning on the west side, and rapid reclamations on the east side.
How could the peninsula deal with the contested changing coast lines, and how would these new communities express themselves in public space?

5) Climate Change

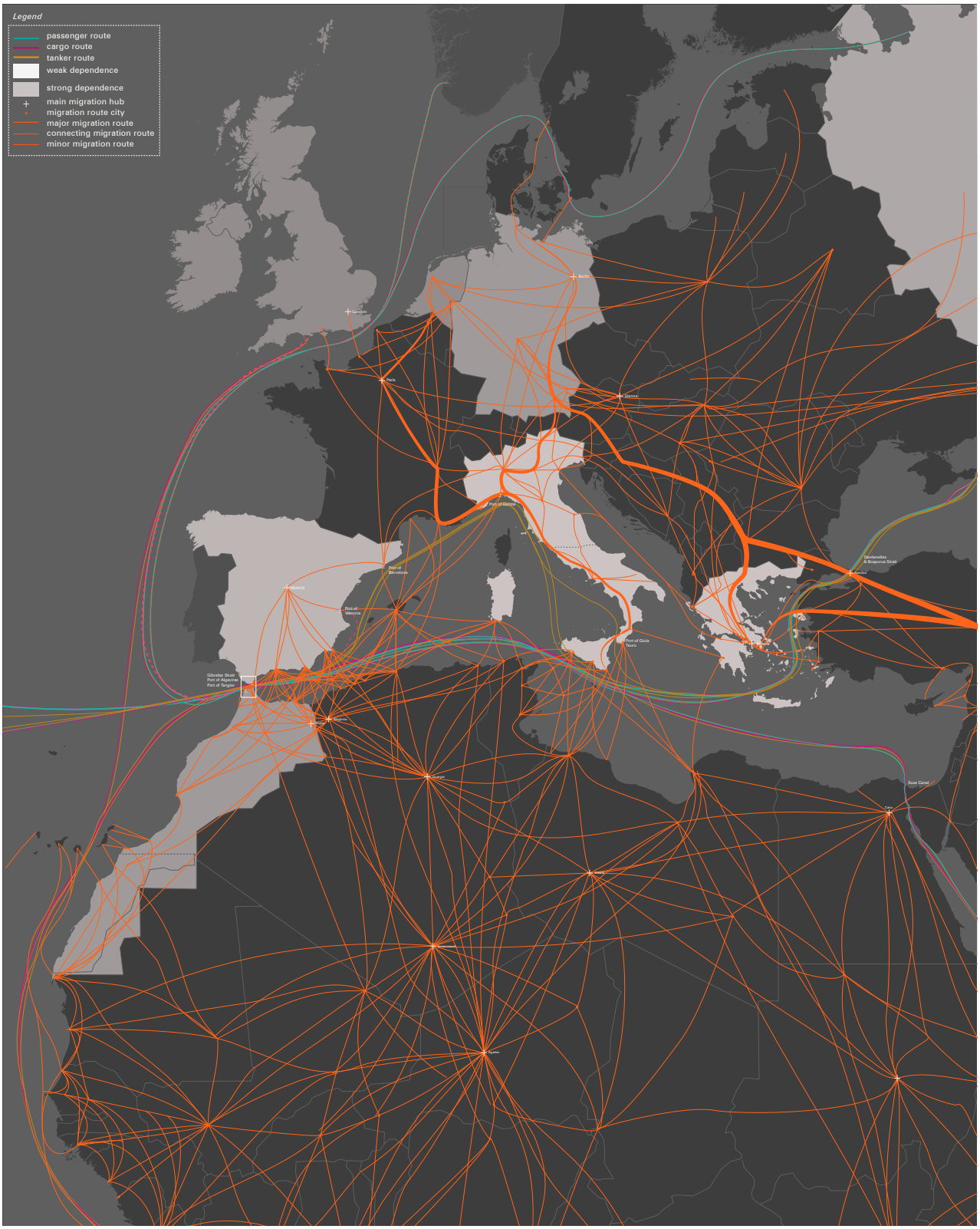
Gibraltar's natural water borders form not just a connection across the Strait, but also a threat to its expansion.
While rising sea levels amplify the spatial pressure on the territory, rising temperatures, extreme weather events, pollution, and overfishing have resulted, and continue to result, in mass extinction and biodiversity loss to which the unique species in Gibraltar are especially vulnerable.
How can we reconsider these crucial thresholds between the city and the water, and the city and the Upper Rock, accommodating both human and non-human populations?



Gibraltar: The Built Environment

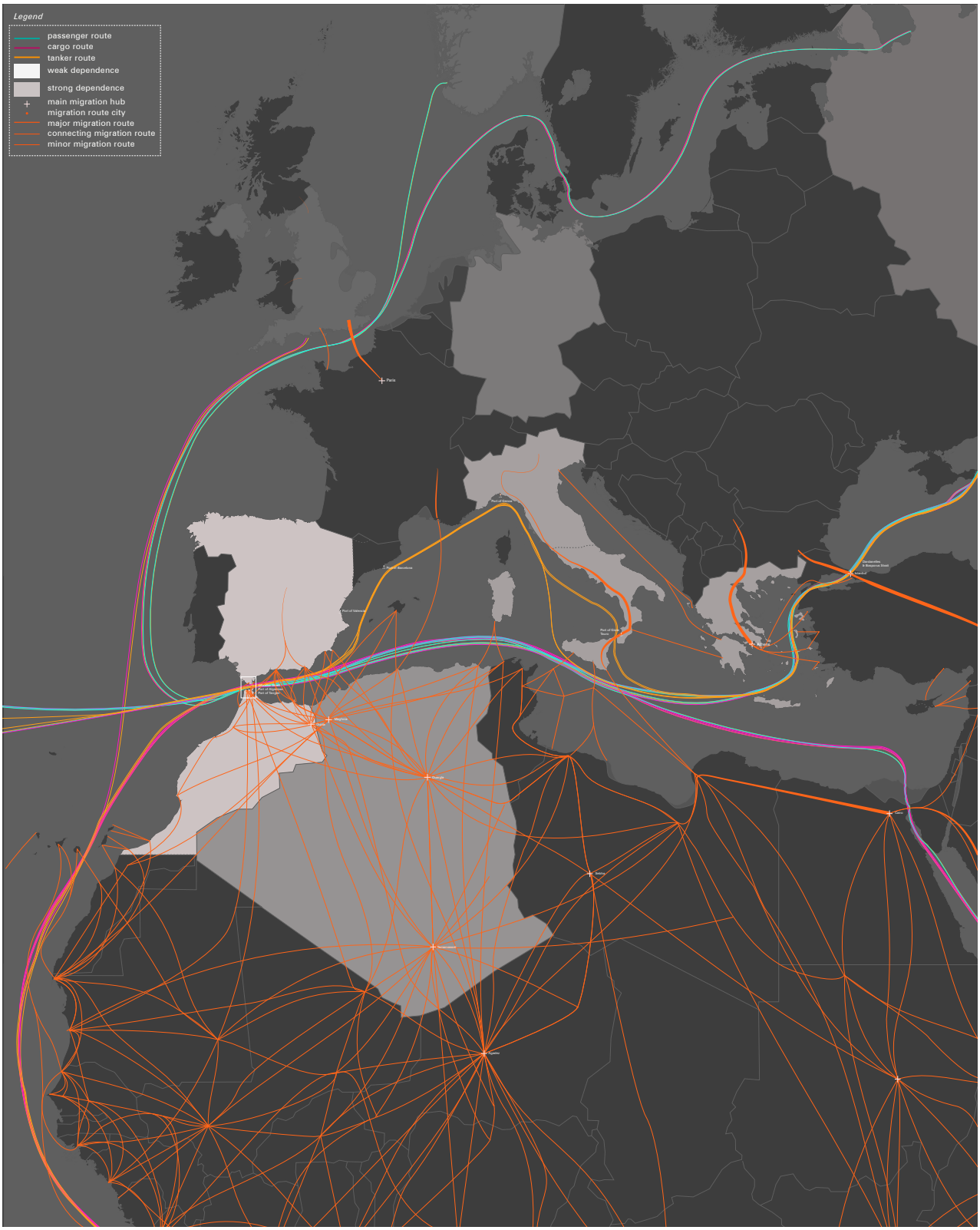


Site location of Gibraltar



2020

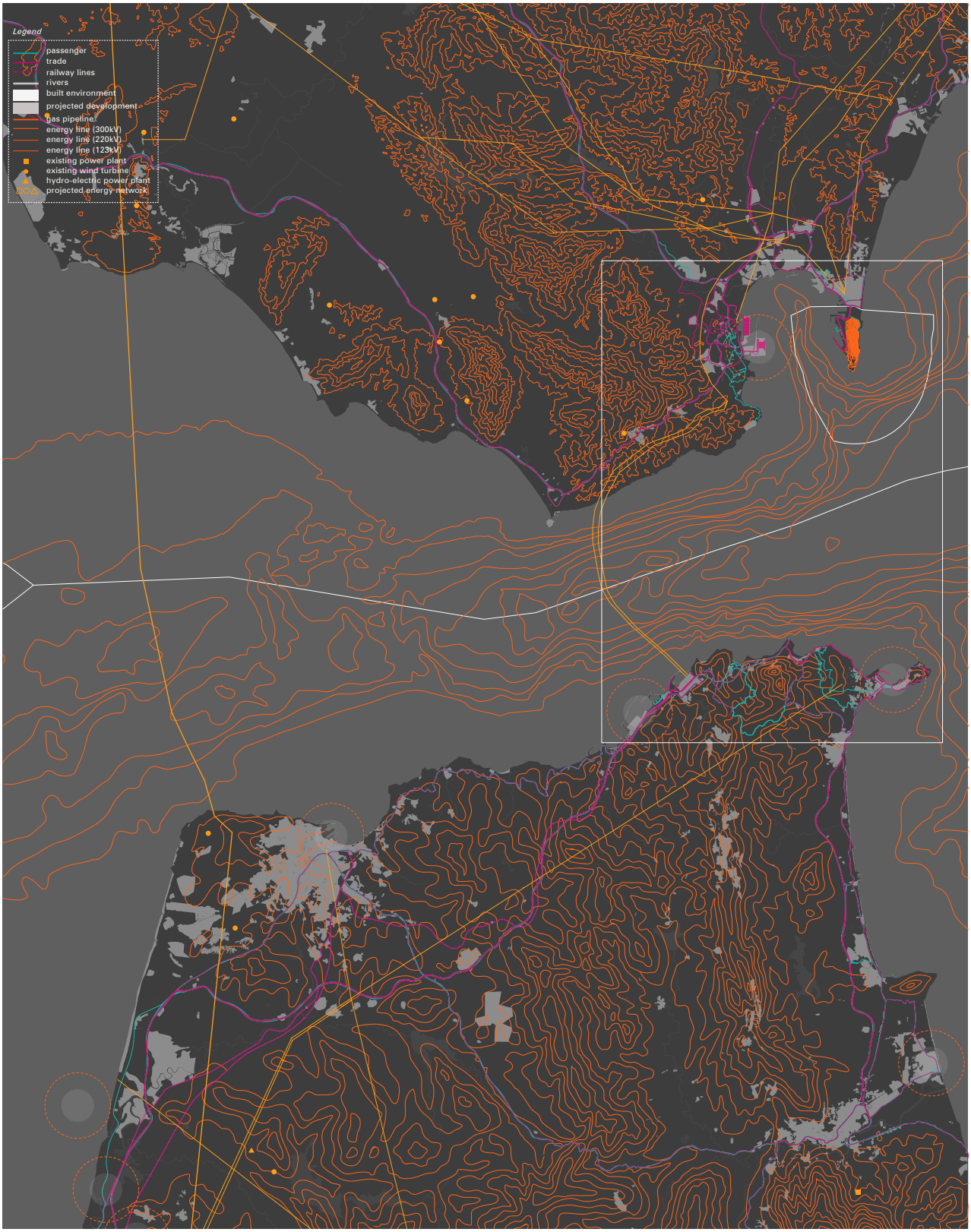
The Territory of Gibraltar: map with present dependecies and migratory routes



2050

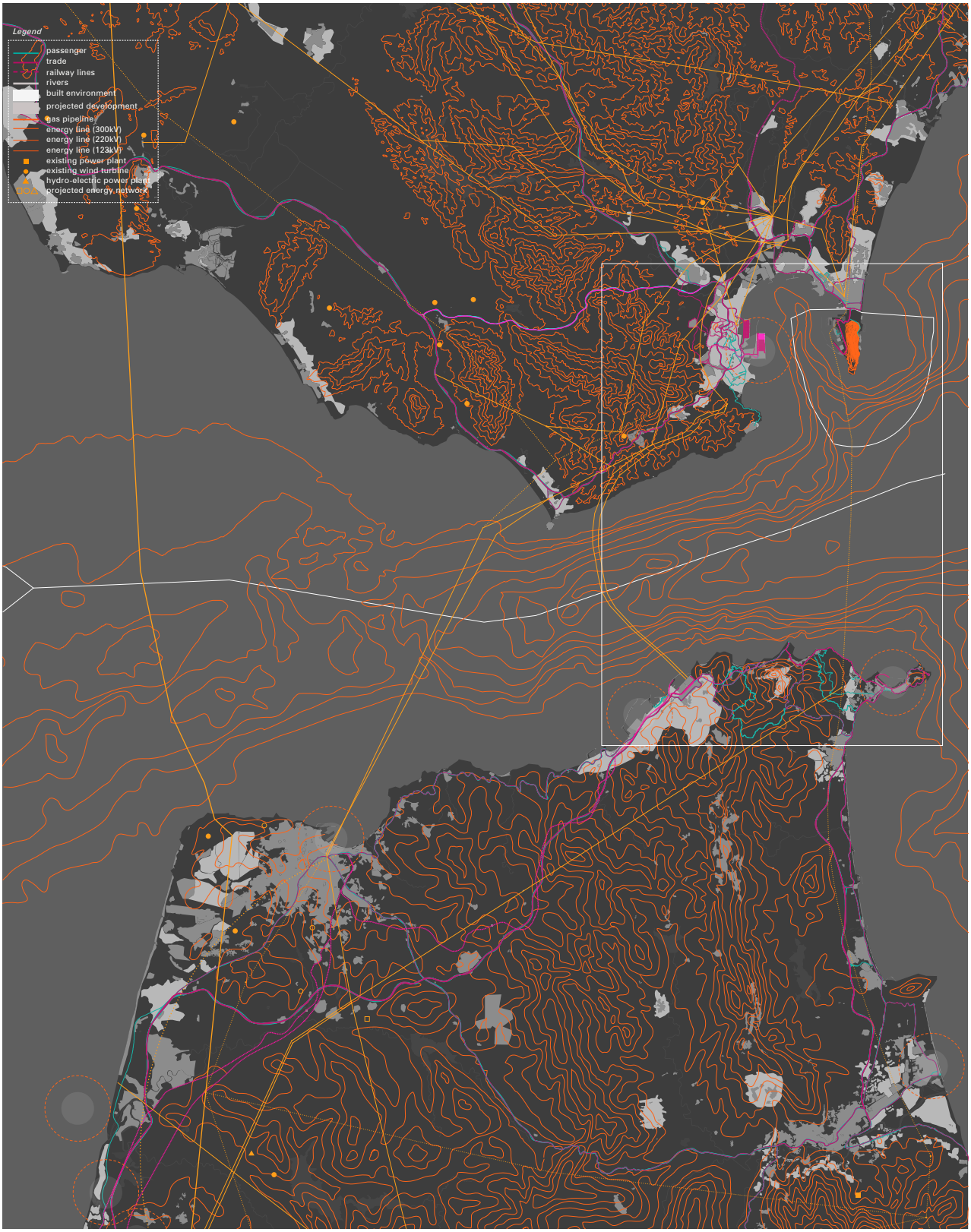
The Territory of Gibraltar: map with future dependecies and the re-orientation towards Africa

2) Infrastructural Connectivity



2020

The Strait of Gibraltar: map with the existing economies and infrastructural developments



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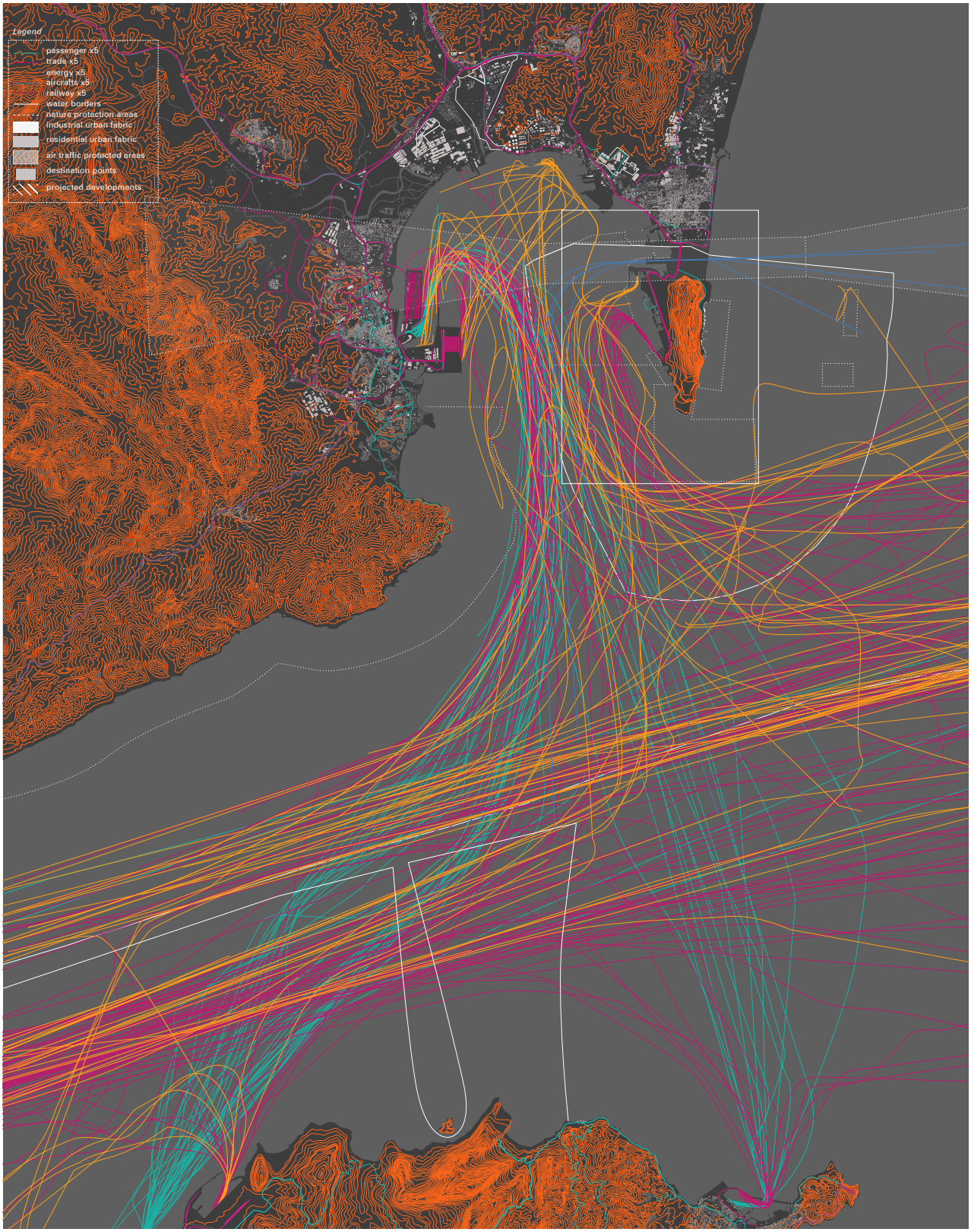
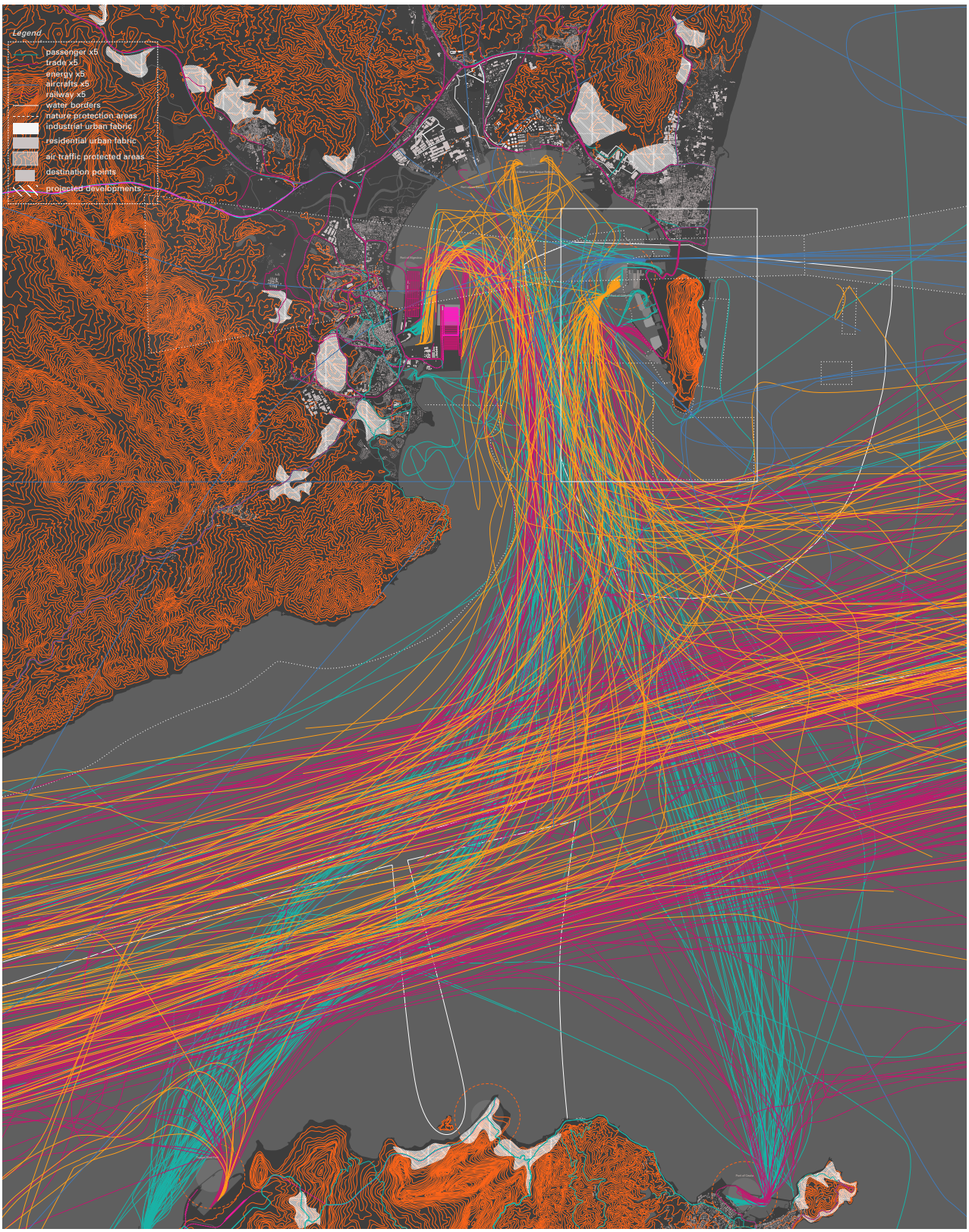
The Strait of Gibraltar: map with the future growing economies and infrastructural developments

3) Gibraltar as Destination



2020

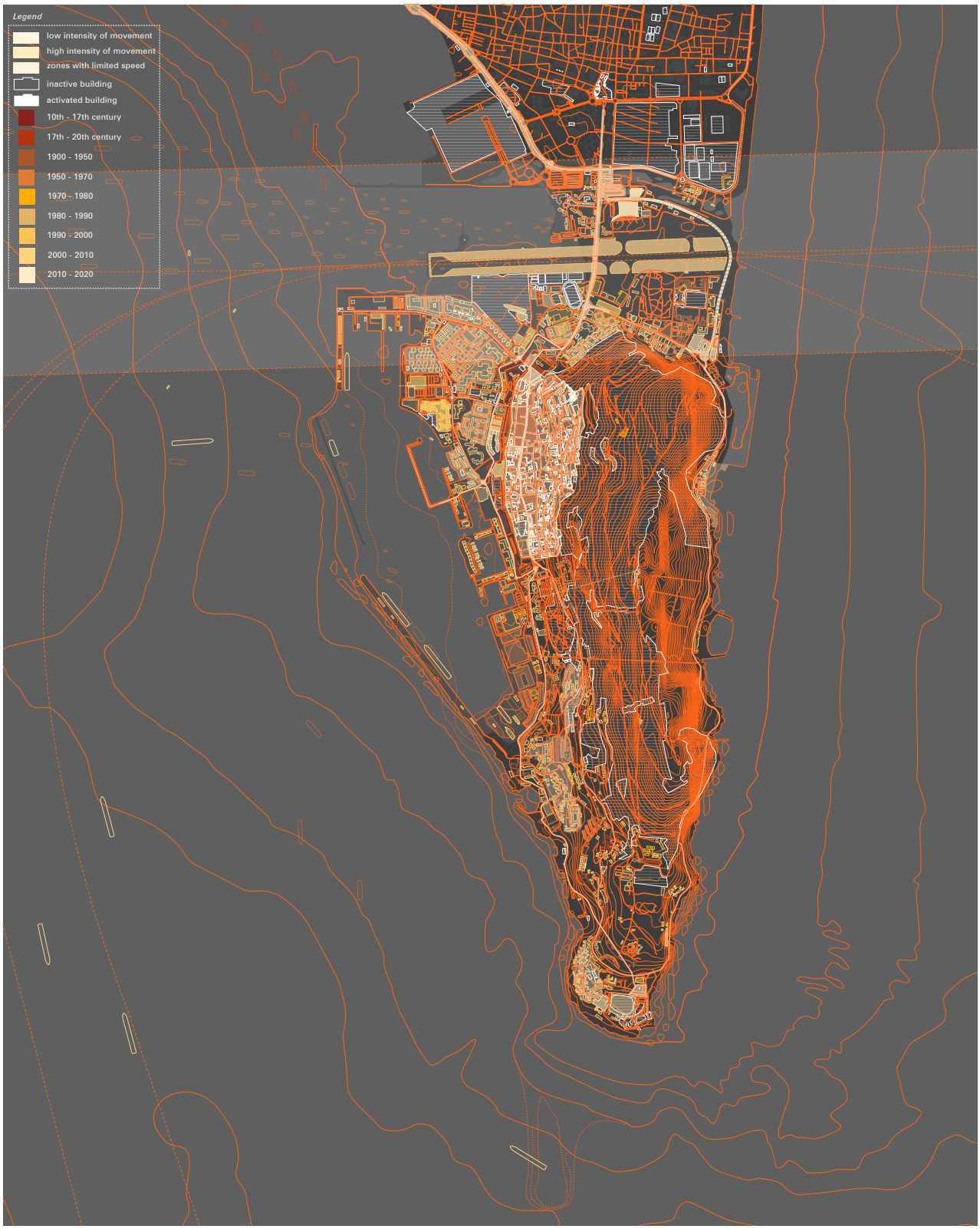
The Bay of Gibraltar: map with the existing weekly traffic through and across the Strait



2050

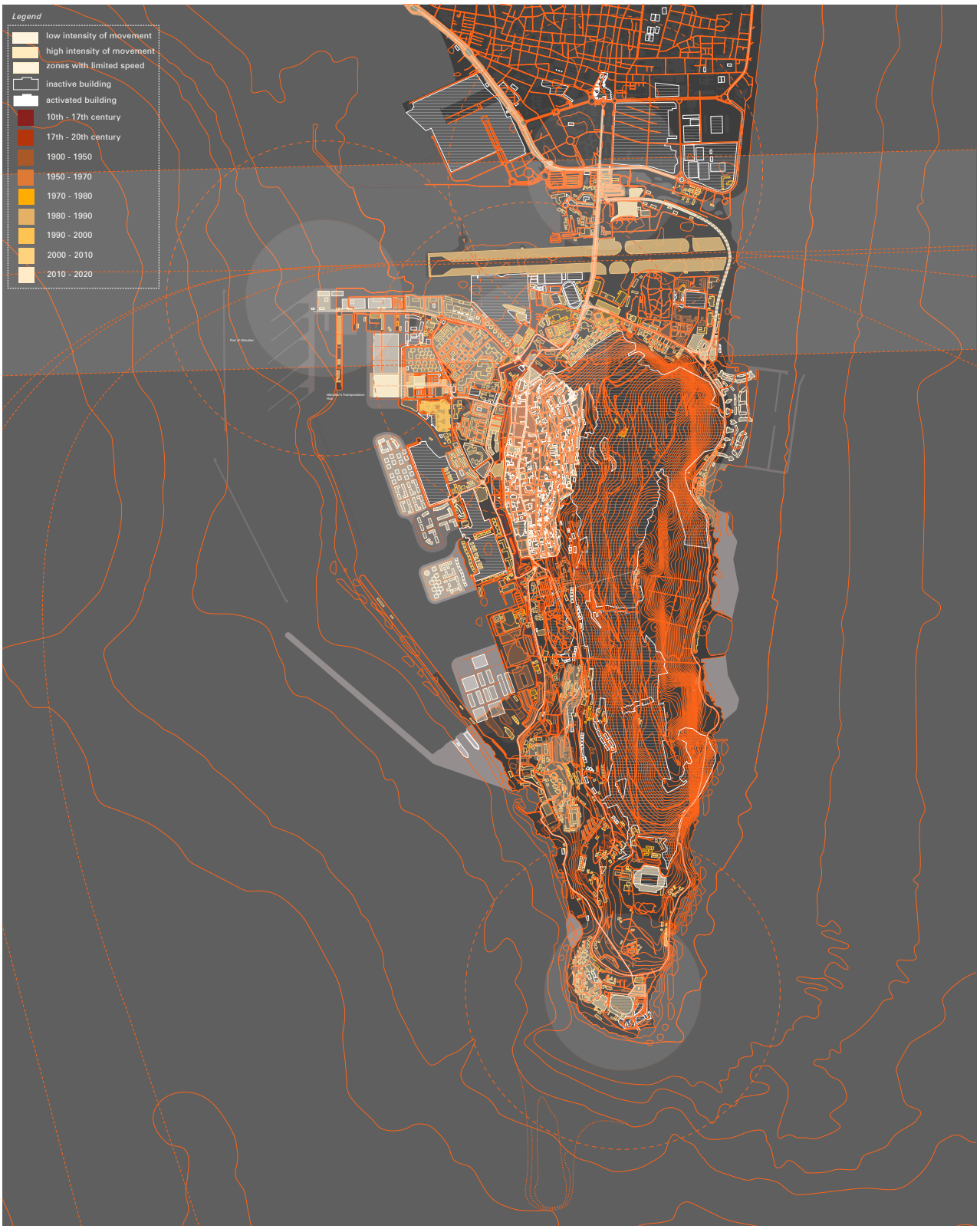
The Bay of Gibraltar: map with the future weekly traffic through and across the Strait

4) Population Growth and Urban Expansion



2020

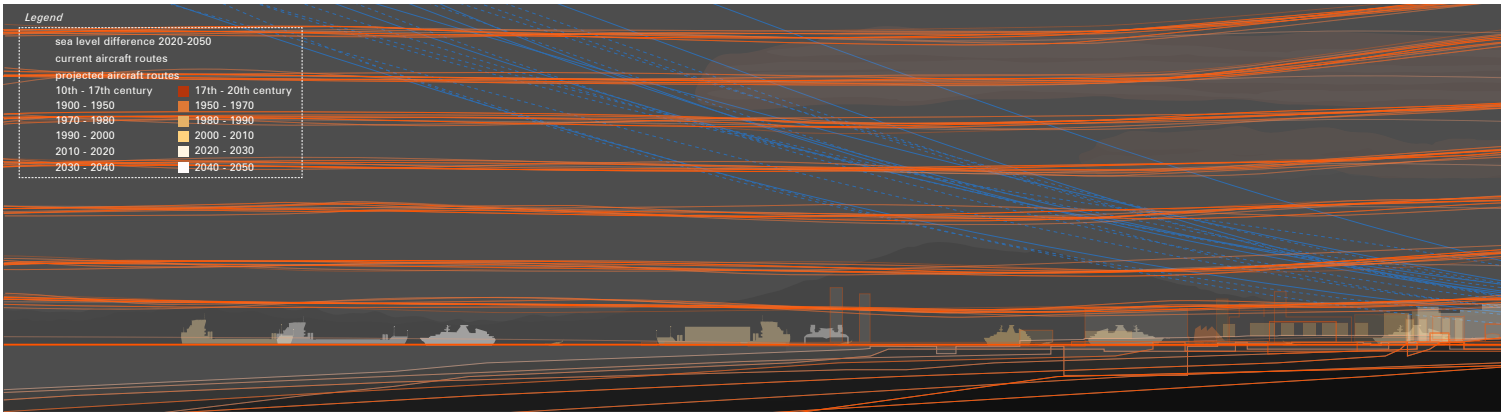
The Rock of Gibraltar: map with the existing built environment and the peninsula at its current state of flux

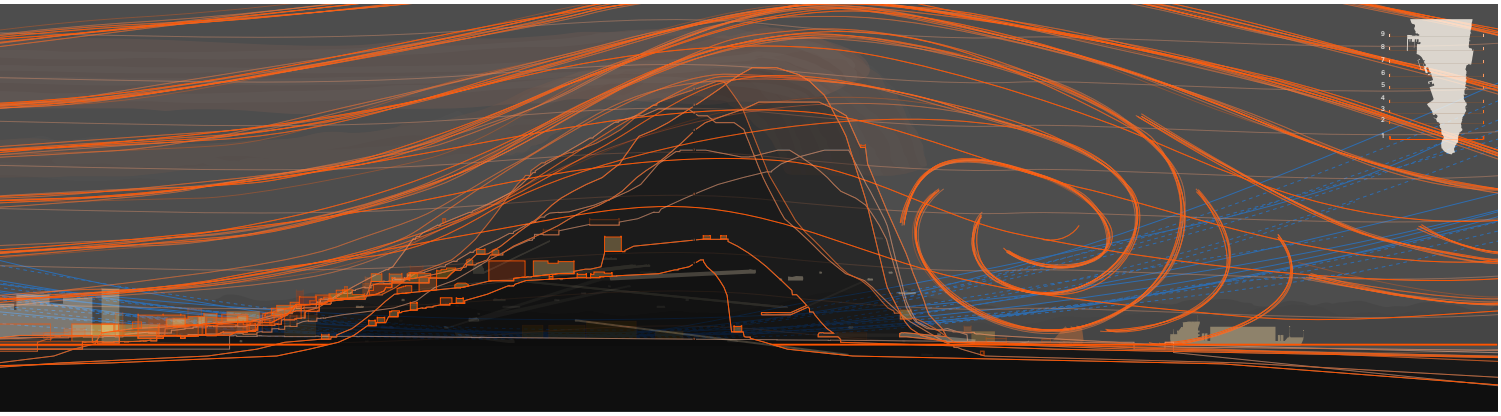


2050

The Rock of Gibraltar: map with the peak areas of the peninsula on the backdrop of future development

5) Climate Change



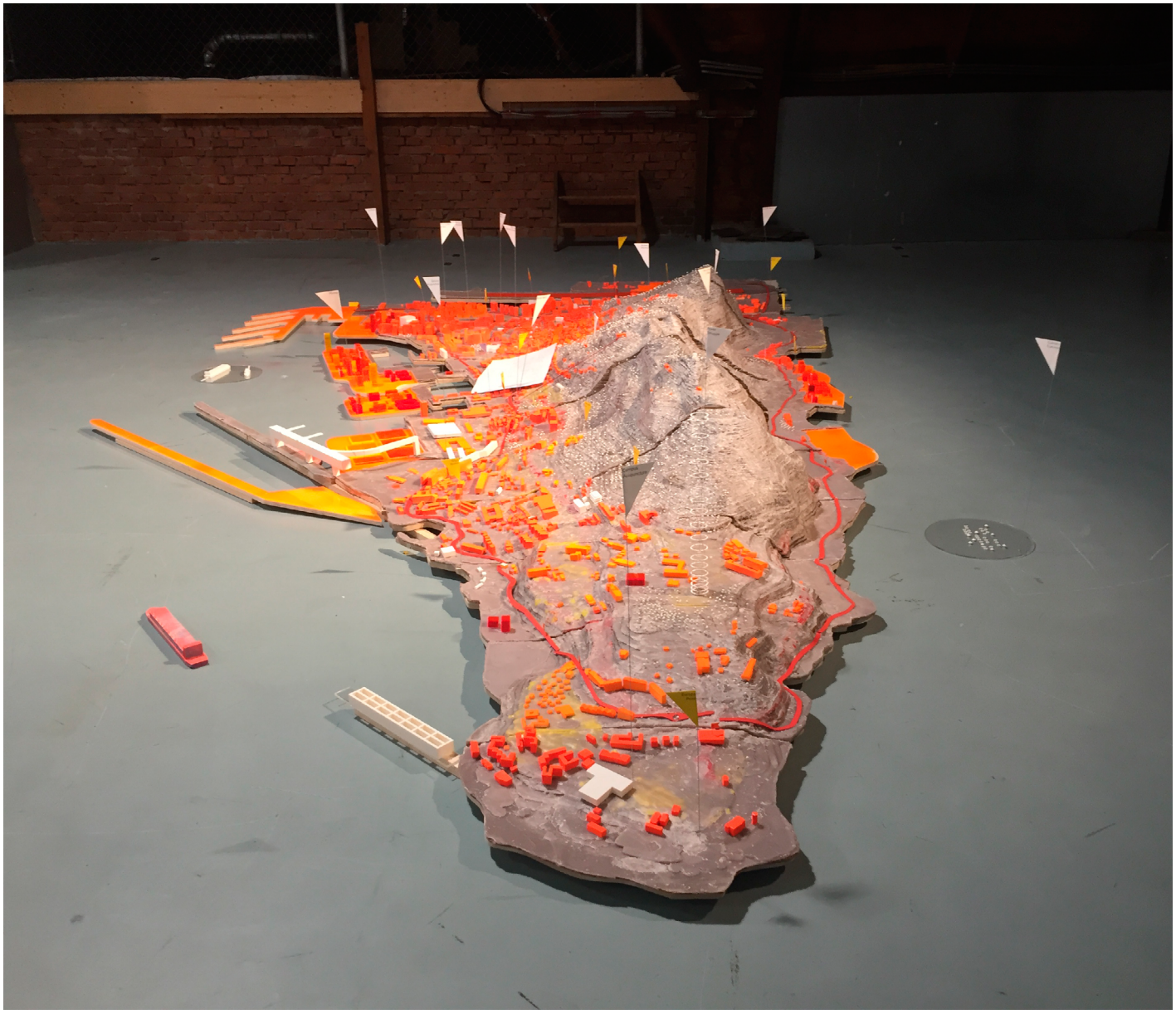


2020, 2050

The Rock of Gibraltar: section with external and climatic conditions



2050 The Eleven Contributions



2020, 2050

Beyond The Rock: 1:1000 wax site model

2020, 2050

Beyond The Rock: 1:1000 wax site model

Gibraltar and Hospitals

The history of Gibraltar has been marked by the succession of various hospitals and epidemics (yellow fever, cholera, smallpox, Spanish flu) that have afflicted the inhabitants of the Rock over the centuries.

Sam Benady, a Consultant Pediatrician at St. Bernard's Hospital, has traced in his book[1] the history of medicine and of the hospitals in Gibraltar since its foundation. The Gibraltarian Juan Mateos converted his own house in order to look after the sick, after the Spanish Reconquista (1462). Confined on a rocky height and well distant from the built area of the town, this ideal isolation hospital played a major role in 1649, when the plague visited Gibraltar. Its specific location can be easily seen in the map drawn by Luis Bravo de Acuña (p. 25, top-right image).

During the 18th century, many services' hospitals such as the Navy and the Old Naval Hospital (1746) flourished and were later converted into barracks. The Great Siege, together with the frequent Spanish bombardments, largely destroyed the hospital facilities[2]. In parallel to the 1804 yellow fever epidemic, the need for a civilian hospital was urgent; Giuseppe Maria Boschetti, a Milanese civil engineer, built the Civil Hospital on the site of the old hospital of San Juan de Dios in 1816. This latter was composed of three separate departments for Catholic, Protestant and Jewish patients and consequently often called as "The Triple Hospital"[3].

After the smallpox epidemic of 1871, the Branch or Isolation Hospital was settled and became part of the Civil Hospital. For the first time, a scrupulous attention was devoted to the architectural spaces and interior: the main wards were, in fact, provided with verandas «to protect against the afternoon sun»[4]. Gibraltar Colonial (1877) and Military Hospitals (1903) shared the same architectural qualities above mentioned.

Nurses from the United Kingdom were trained and both an X-Ray Department and the Military Hospital opened in 1904. The first Maternity Department was born in 1921 and a children's ward of 12 beds soon after.

During the First World War the Colonial Hospital has been described as "an efficient European Hospital"[5] and in the 1920s many Gibraltarian women were sent for training in England as nurses. The King George VI Memorial Hospital with its new wing was added in 1956 to house a new Children's Ward and inaugurated by Queen Elizabeth II during her visit to Gibraltar. Through this process the Colonial Hospital was transformed into the St Bernard's Hospital in 1963.

[1] Benady, Dr. Sam G., *Civil Hospital and Epidemics in Gibraltar* (1st ed.). (Grendon, Northampshire, United Kingdom: Gibraltar Books Ltd, 1994).

[2] The watercolor view on the previous page shows the devastation in Gibraltar after the Great Siege looking northwards down Main Street, which hangs in the Gibraltar Museum, shows what may be the ruins of the hospital.

[3] Benady, Dr. Sam G., *op. cit.*, p. 22.

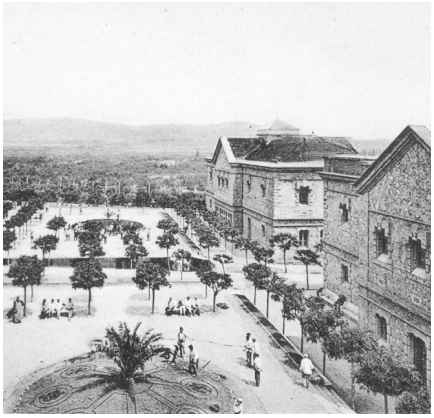
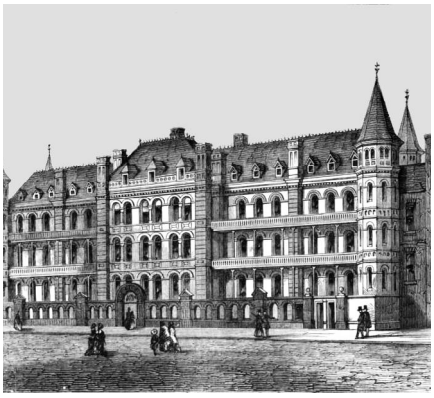
[4] *Idem*, p. 40.

[5] Benady, Dr. Sam G., *op. cit*., p. 51.

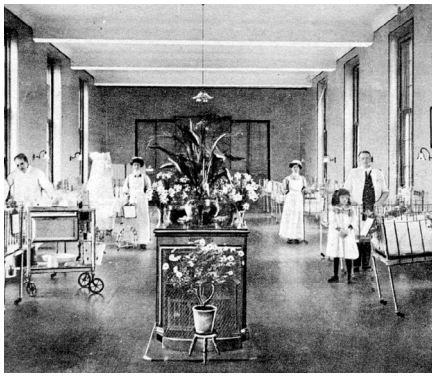




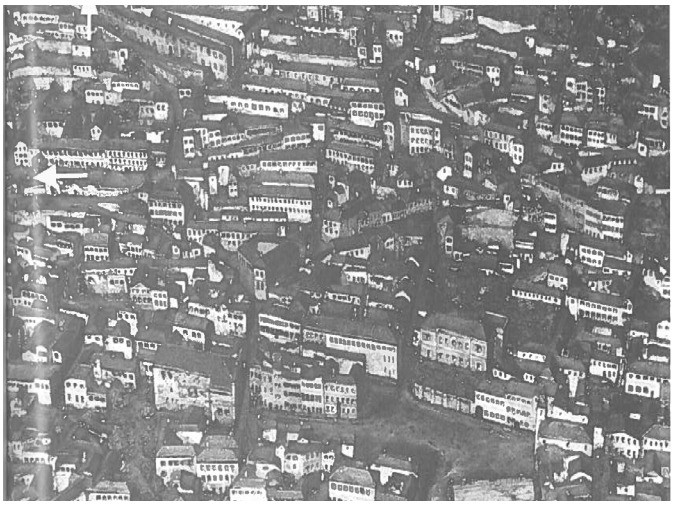


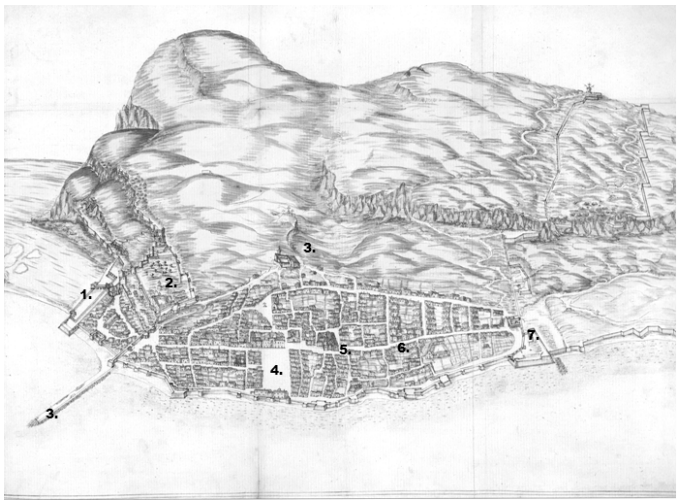





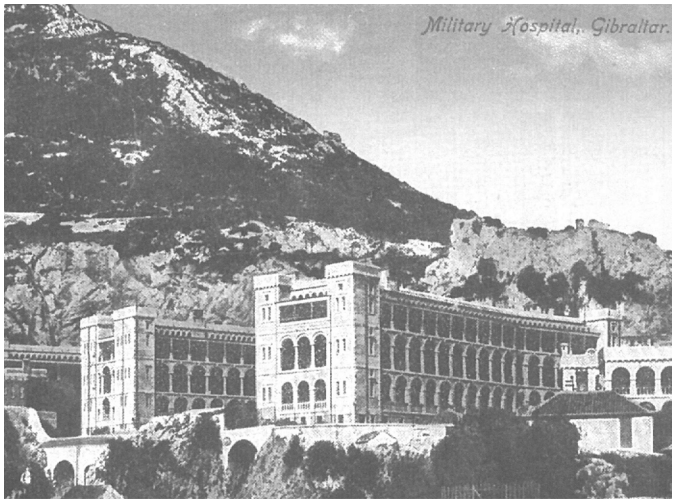


Paediatric hospital types (past)
1. Florence (Hospital of the Innocents)
2. Milan (Major Hospital) 3. Paris
(Hôpital Necker) 4. London (Great
Ormond) 5. Edinburgh (Royal Hospital)













Gibraltar Hospitals captured from contemporary postcards and from the 1627 map by Luis Bravo de Acuña

Benady, Sam. *Civil Hospital and Epidemics in Gibraltar.* Grendon: Gibraltar Books Ltd., 1994, pp. 57, 61, 63







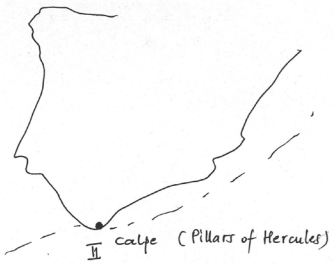


Historical photo of the Gibraltarian hospitals

From top to bottom:
A typical ward at the old Colonial Hospital (now St Bernard's Hospital), 20th century;
St Bernard's Hospital, Gibraltar (Entrance to the Hospital);
Gibraltar Military Hospital, 1917;
St Bernard's Hospital, Gibraltar (Hospital room)

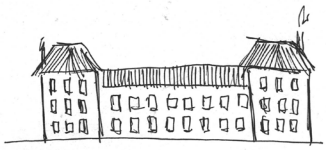
HISTORY OF MEDICINE IN GIBRALTAR (paper by C. Montegriffo on British Medical Journal, 1978)

BC



St. Michael's Cave (Roman)

→ The history of medicine in Gibraltar began with a military flavour

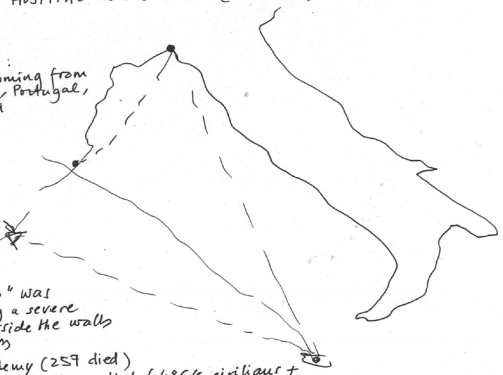


700 AD Moorish settlement in Gibraltar
13th century ADVANCED MEDICAL PRESENCE
1462 Spanish reconquest of the Rock
1st rudimental hospital → Juan Mateos

he was active against Algerian pirates and he turned his large town house into an infirmary, keeping only a small cell for himself (syphilis brought over from the New World) 24 years helping the hospital until he died in 1594

1704 BRITISH OCCUPATION
military base → medicine ← military / civilian
OLD HOSPITAL OF ST JOHN OF GOD — converted to barracks (Royal Artificer's Company)
(¥)
1740 NAVAL HOSPITAL was built
1903 BRITISH MILITARY HOSPITAL was built (206 beds)
- 1927

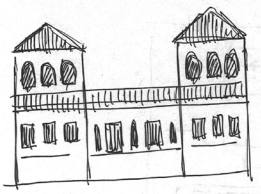
(¥) mid-18th century: immigrants coming from Genoa, Italy, Portugal, Spain, Malta



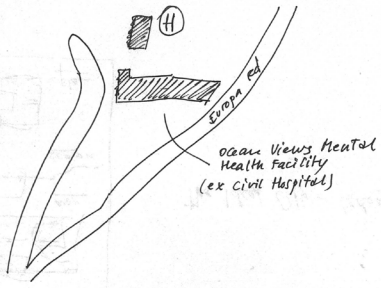
1798: yellow fever in Gibraltar
1814: 7 doctors (3 British, 7 Spanish)
1804: a "lazareto" was opened during a severe epidemy outside the walls of the fortress

1800: strong epidemy (257 died)
1804: half the population died (4864 civilians + 1000 soldiers)
1810-14: minor epidemies

1816 CIVIL HOSPITAL was built



Royal Naval Hospital



It was organized in 3 divisions
1) Roman Catholic
2) Protestant
3) Hebrew

1885 last cholera epidemy
1939 King George V Memorial Hospital was built
1940-45 the new hospital was used as the 10th Military Hospital

Notes and re-reading of Benady S.'s book

Sketches by the Author, 2019

Individual Position

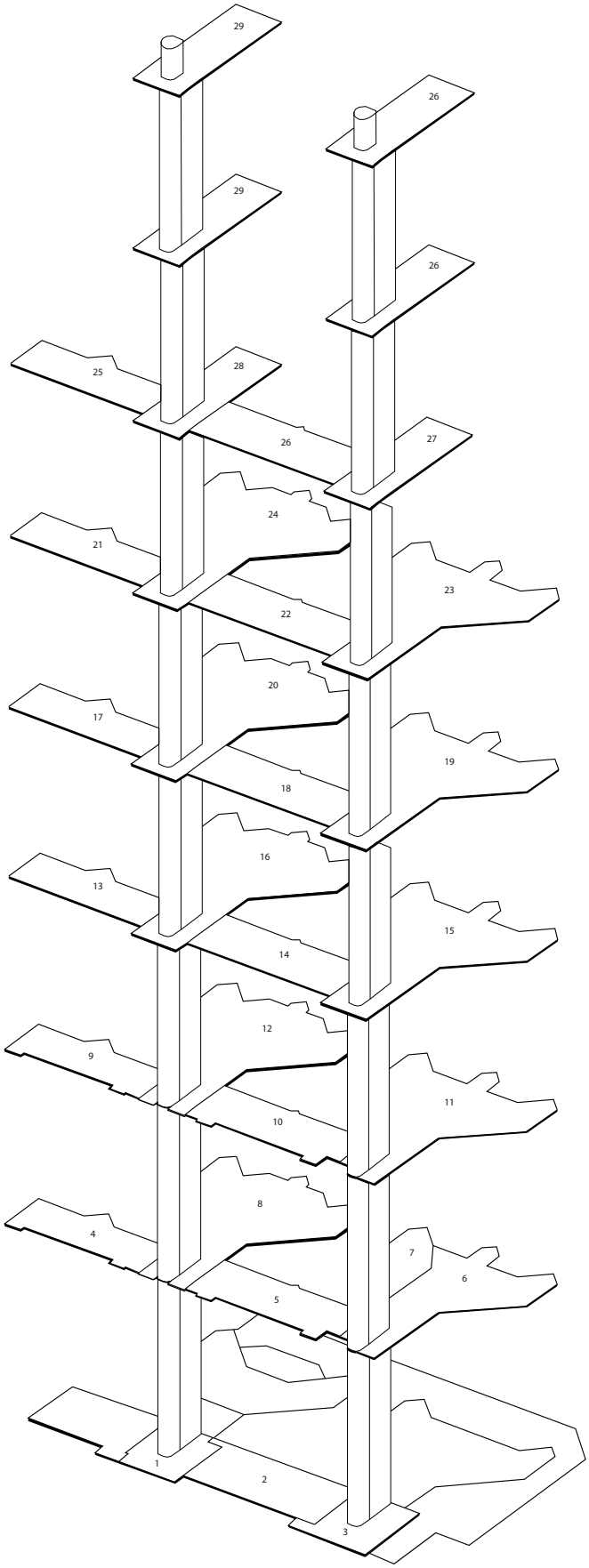
The provision for children healthcare in Gibraltar will support the medical excellence of the region and contribute to stimulate a new economy and welfare. This catalyst, in fact, responds to both the increase of children in the peninsula (nowadays 25% of the population is composed of children under 15), the population projection up to 2100 and the increase in investment of Gibraltar's Health Service.

Nowadays Gibraltar is dependent on UK's Health authority (NHS). "Regarding the small population that Gibraltar has, it is not always practical for medical specialists to be employed full time, so if needed they are generally flown in from the United Kingdom"–quotes the website of Gibraltar - Health Service. Gibraltar Health Authority's opened first-ever dedicated Child and Adolescent Psychology Service will commence in January 2019. In percentage terms, the level of investment in Gibraltar's Health has increased materially from almost 2% of the overall GHA budget in 2011/12 to over 6% in 2018.

The Gibraltar Health Service is organized and modelled on UK's National Health System and follows traditions of British medical practice; Gibraltar health system is therefore highly dependent on both UK and Spain.

The new paediatric hospital will provide new flows and shifts, making the south of Spain dependent on the peninsula: in particular, the parents who move to Gibraltar with their children, the doctors, the nurses, professionals and support staff.

1 Gymnasium
2 Pharmacy stores
3 Offices
4 Pharmacy Dispensary
Medical Records
5 Radiology
6 Accident & Emergency
7 Mortuary
8 Rehabilitation
9 Outpatients Clinics
Ortho/Trauma, Surgery
10 Outpatients Clinics
General surgical, Gynaecology,
Phlebotomy
11 Critical Care Unit
12 Male Medical Ward
13 Restaurant
14 Pathology
15 Ortho/Trauma Ward
16 Female Medical Ward
17 Medical Ward
18 Ophthalmic Unit
19 Surgical Ward
20 General Ward
21 Paediatrics Ward
22 Day Surgery Suite
23 Operating Theatres
24 Maternity
25 Medical Investigation
StressTesting, Endoscopy
& Pain Clinics
26 Administration
27 CSSD & TSSU
28 Dialysis Unit
29 School of Health Studies
Library, Theatre & Rooms



Sectional Masterplan of St. Bernard's Hospital in Gibraltar

Drawing by the Author, 2019



0 1 km

Francesca Giudetti, map of Gibraltar with project location (depicted in blue)

Site

The project is physically anchored to the rock, on the Southern-West edge of Gibraltar Rock overlooking the Atlantic ocean. The paediatric hospital will face four different elements:

1) Camp Bay and the Old Naval Hospital;
2) Med Steps;
3) the Atlantic Ocean and Gibraltar Bay;
4) the West-Side area.

Furthermore, it takes advantage of its position and of the surrounding nature. The area is dominated by the morphology of the rock and by residues of the peninsula's military past.

The site is part of the so-called "Upper Rock Reserve", 1400 feet (420 m) above the sea, that actually covers over 40% of Gibraltar's land area and was established as a "strict Nature Reserve" by the IUCN in 1993 (last extended in 2013). The whole area is one of Gibraltar's main turistic attractions. Because of congestion problems, the Government of Gibraltar prohibited in 2012 the use of private cars for tourists on the Upper Rock, making it only accessible by group taxi, on foot, or by Cable car.

The *Hospitable Hospital* benefits of the presence of the Rock's inhabitants (macaques), together with its natural resources (plants, caves, etc).

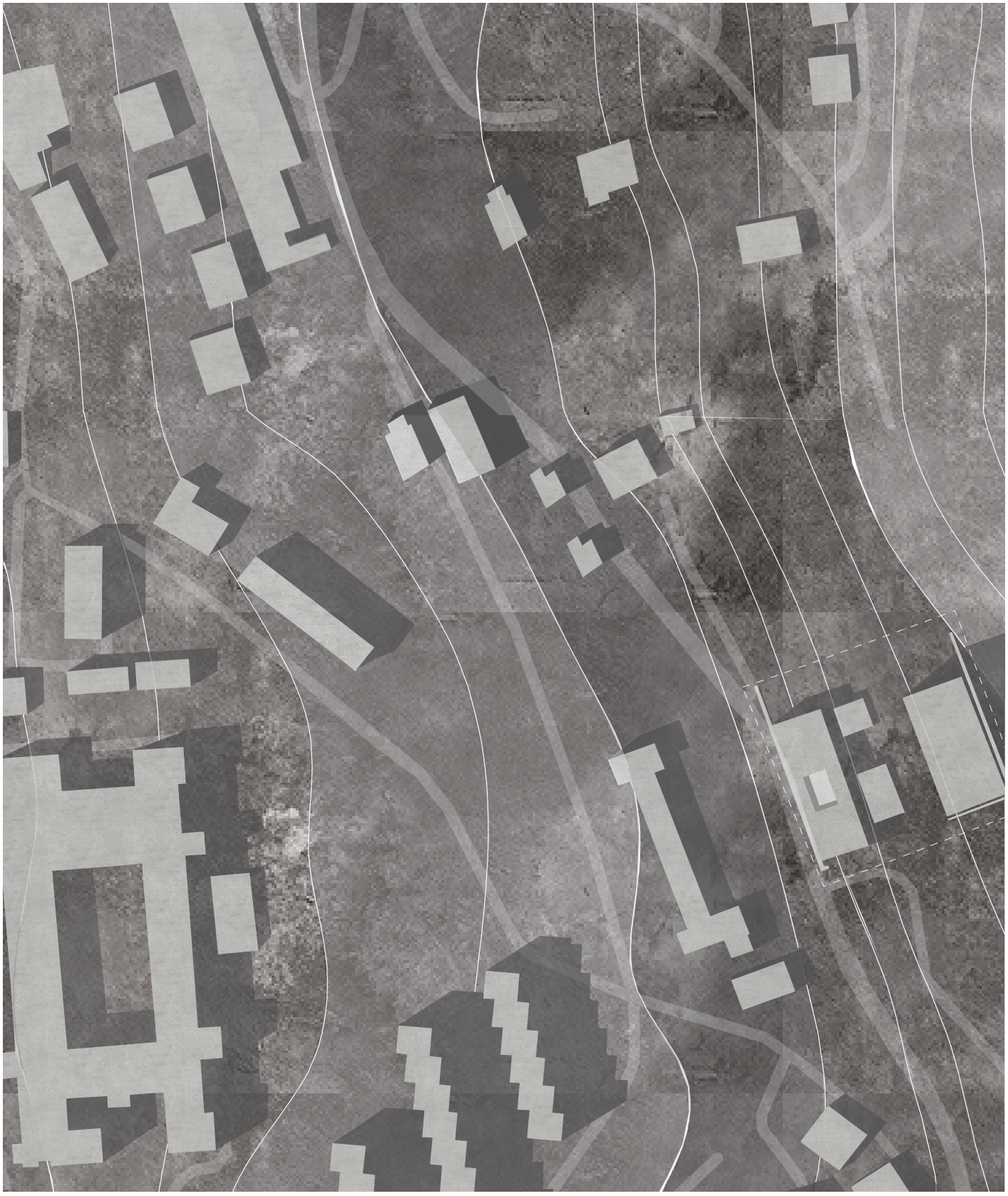
Historically, one of the first Civilian hospitals of Gibraltar was located in the Upper Rock as well as the Naval Hospital. The paediatric centre will be isolated from the town and located in such a position that almost allows for a 360° view of the British Overseas Territory.



0 25 50 m

Elevation view of the complex

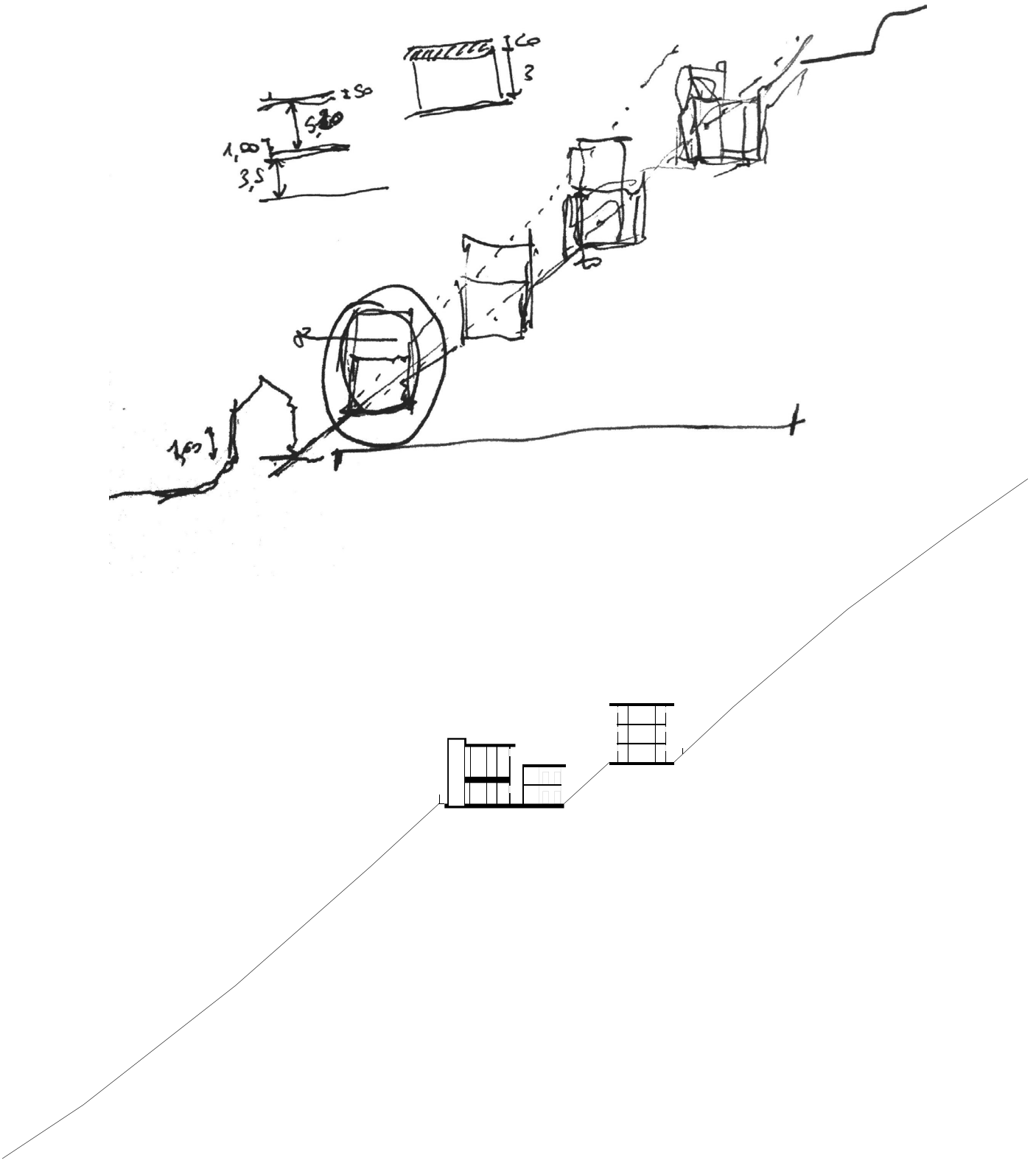
Francesca Giudetti, axonometric drawing of the project in its context, 2019



0 25 50 m

Masterplan

Francesca Giudetti, 2050 masterplan of the *Hospitable Hospital*, with project location



0 20 40 m

Site sections

Francesca Giudetti, section on the Rock
with project



Garrison
Gymnasium



Street view

Site photographs

Discourse

The project aims to redefine the basic meaning and implication of the hospital environment. It does so by rethinking the hospital as a type, with a particular attention devoted to future trends, both healing and space-related.
Primarily, the design tries to avoid the effect of generic and anonymous hospital buildings, transforming and spacially reducing treatment into play.

The *Hospitable Hospital* questions certain customs or protocols. It has the tenderness and warmth of a house, a therapeutic place with a simplified circulation.

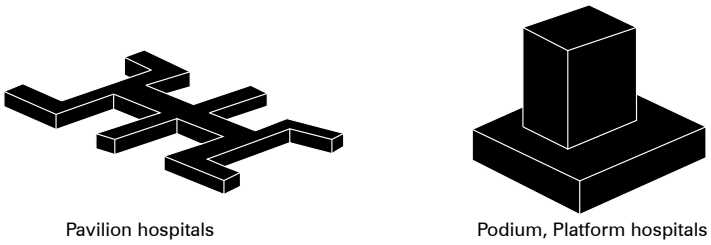
Precedent Studies

The linguistic root of the Latin word "hospes" is the same as those of hotel, hospitable, hospitability. In the days before antibiotic drugs and X-ray machines, before clean surgery room and anaesthesia, hospitals were indeed places to be despised.

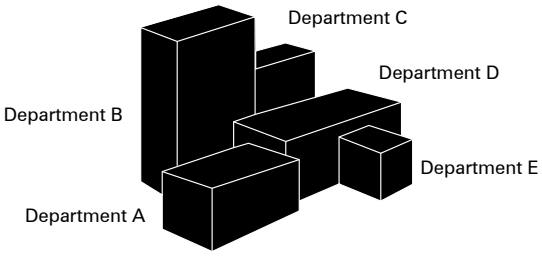
Hospitals are both the oldest type of architecture as well as the newest type of architecture since they have been a descendant of alms-houses, poorhouses, correctional facilities and welfare centre, in many instances run by the church.

The history of hospitals has stretched over 2500 years. This section collects, illustrates, examines, criticizes many historical examples. In the first part, a chronology of canonical hospitals tells the story of healthcare buildings as it nests within the story of humans: temples dedicated to the healer-god Asclepius in ancient Greece; to medieval monasteries and infirmaries; to Hotel-Dieu de Paris; to the first pavilions; to sanatoriums; to muffin-types and to specialist hospitals.
On the other hand, hospital gets a new perspective here. After a long relationship with religion, in the mid 19th century, hospitals and the medical profession became more professionalized with a reorganization of the hospital management along with more bureaucratic and administrative lines. The distinction is observed between derived and designed historic hospital plans.









Francesca Giudetti, Evolution of Healthcare, 2019

Classical

Medieval

Athens plague

Antidote to poison

Plague kills 25% of population

500 BCE *300 BCE* *0* *500*

Origin

Temple

Sanctuary

Asclepieion

Valetudinaria

Abbeys, Convents



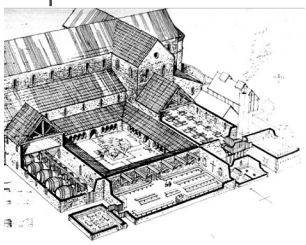
400 BCE:
The record in Fa Xian's travelogue is one of the earliest accounts of a civic hospital system in the world.



350 BCE:
Temples dedicated to the healer-god Asclepius, known as Asclepieia in ancient Greece.



55:
Roman Valetudinarium (Military Hospital).
Many have been discovered among the ruins of old Roman military fortresses. Like more modern hospitals, they were made up of a number of small rooms, divided by hallways.



820:
St. Gall Monastery, Switzerland.
Example of how monastic hospitals served as centers of hospitality in medieval society, offering treatment to monks, pilgrims, paupers, and nobility.

Industrial Revolution

Modern

WWI

Smallpox Vaccine
Yellow Fever

Malaria, Plague vaccine
Cholera

X-rays

TB, Tetanus, Yellow fever vaccine

1800 *1850* *1900* *1930*

Pavilion

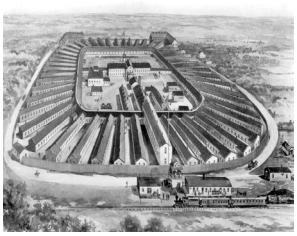
Sanatoria

Voluntary Center

Research centers, Institutes



1839:
M. P. Gauthier, Hospital Lariboisière, Paris, France.
The hygienist design meant plenty of air and light, visible in the central courtyard and the corridors and terraces that surround it. Centrally placed is the chapel.



1865:
Mower General Hospital, Philadelphia, USA.
The hospital complex was configured as a central compound surrounded by a ring of 47 radiating wards and other buildings, and had a 3,600-bed capacity.



1889:
John Hopkins Hospital, Baltimore, USA.
Followed four years later by The Johns Hopkins University School of Medicine, the hospital is now regarded as one of the world's greatest hospitals.



1904:
Otto Wagner, Asylum, Wien, Austria.
The Steinhof Psychiatric Hospital, located on a hillside and the church lies on a North-South axis, at the centre-top of the hospital complex.



1928:
A. Aalto, TB Sanatorium, Paimio, Finland.
This cathedral to health was an instrument for healing. Aalto's design succeeded on both a macro and micro scale, integrating the landscape with the architectural site plan.

Renaissance Enlightenment

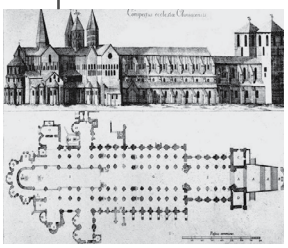
Lepers segregated in lazarettos Tuberculosis Black Death Syphilis Bubonic Plague

1200 *1300* *1500* *1700*

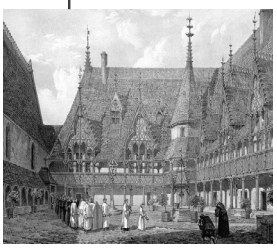
Monastery Open Hall Wards

Churches

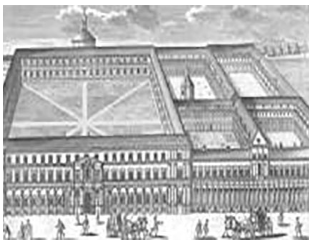
Guest Houses
Hospices



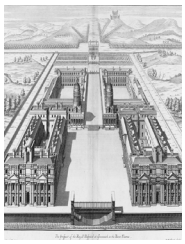
1157:
Monastery of Cluny, France.
Patients could hear mass everyday from their bed within the large open ward, close to the altar.



1443:
Hôtel-Dieu de Beaune, France.
Hospital and refuge for the poor, with wings serving the office, kitchen and apothecary functions. Nuns and patients were housed nearer the chapel, towards the center of the complex.



1456:
Hospital Cá Granda, by Filarete, Milan.
The building is a rectangle made up of a series of square courtyards, with the church in the centre, and one wing dedicated to men and the other to women. Filarete designed it as part of his project to turn Milan into an ideal Renaissance city.



1695:
Royal Naval Hospital by C. Wren, Greenwich, UK.
The buildings were built to house naval pensioners, retired veterans of Britain's navy.



1721:
Guy's Hospital, London.
Originally established as a hospital to treat "incurables" discharged from St Thomas' Hospital. Rectangular plan with two internal courts divided by a cross wing.

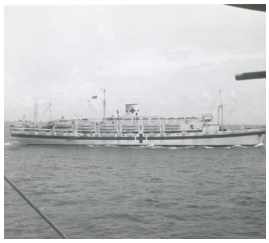
WWII Cold War Second Industrial Revolution Globalization

Antibiotics Ebola AIDS

1940 *1950* *1970* *1990* *2000*

L, H type K, T type cake type specialist hospitals

High rise, block plan hospitals Mega hospitals Multiple-unit



1944:
USS Mercy (AH-8).
The USS Mercy was a Comfort-class hospital ship laid down under Maritime Commission.



1950:
Veterans Hospital, Brooklyn, USA.
The modern hospital was designed by Skidmore Owings & Merrill's Veterans' Administration Hospital in Brooklyn, NY.



1972:
Erasmus Hospital, Rotterdam, NL
The medical faculty provides medical training for physicians and scientific researchers, postgraduate courses, and it contributes to medical specialist training programs.



1988:
University Hospital Robert Debré, Paris, France.
It is now the leading prenatal center in the north of Paris and the Île-de-France region , it is the largest pediatric hospital in Europe in terms of activity. It acts as a hospital for children and for adults.



2000:
Imai daycare centre, Akita, Japan.
As a result of the structural system designed by Shigeru Ban Architects, the roof naturally forms a curve that is suspended from its two ends, much like traditional Japanese Architecture.

Timeline of Hospital Typologies

Drawing by Francesca Giudetti

Data from Wagennar, C., T*he Architecture of Hospitals* (Rotterdam: NAi Publishers, 2006), 206-213

Typological Analysis

This chapter retraces the *arché* of the hospitals and their typological developments.

To go back over the typological evolution of hospital buildings is a journey that speaks about their complexity from the past till nowadays, «defining a polyhedral set»[1].
Stephen Verderver in his book, *Innovations in Hospital Architecture* (2010), describes how the progress of the hospital typology and genealogy has started in the ancient world.

The Greek Asclepieia (*p. 42)* were not only temples of worship but also medical care centers. In fact, they offered entertainment, physical exercise, hydrotherapy, spectacles, music and games, practical treatments and religious ceremonies. The Epidaurus Asclepieion, for example, was situated in rich valley, at the foothill of mount Kynortion. Its facilities were spread within the forest, described by Pausanias as "the sacred grove"[2].
The combination of buildings where to practice medicine and recreational ones (theatres, gymnasia, hippodromes, etc.) conveyed a holystic approach to treatment, by highlighting the importance of humans' psychological condition.

Instead, the Xeodochium of Pammachius in Porto (in the vicinity of Rome), was a place to provide shelter for travelers and care for the needed (*p. 44).*
Hence, this is the time when the word "hospital" was coined. The first hospitals in Europe were, in fact, guesthouses for pilgrims and shelter for the poor. They performed a plethora of functions with names as hospital, almshouse, asylum, orphanage, foundling home, guest-house (Pevsner, 1976).
«The first hospitals emerged from religious foundations, in halls and cloisters. Religious communities of monks and nuns provided care, shelter and food for the poor and the sick, in institutions before the age of dedicated institutions (...)»[3].
Modeled on a Roman villa, the St. Gall Monastery (*p. 45)*, is relevant for the development of such typology. «Here the sacred domain occupied the eastern half of the complex, with the church located at the center. (...) In the St. Gall plan, three double-storied structures enclosed a cloister, with a warming room, dormitory, refectory, vestry, cellar and larder. This arrangement derived from the open galleries courts of Roman houses, attached to the church to complete the inner square»[4].
The critically ill faced the cloister of the sick and were close to the church's altar. The complex was surronded on its two northern sides by a garden (*herbarium or hortulus*). Furthermore, as the plan displays, the northern part of the monastic layout hosted the health-related buildings.

A nun's station in the centre and the altar at the end, in order to enhance its visibility, characterized the typical cruciform plan of the Middle Age. The buildings were, moreover, arranged around a cloister and the ground floor was porticoed.
Between Canterbury Cathedral (*p. 46)* and Meister Omers House, the Infirmary chapel was built in the middle of the 12th century and lately repaired. This place, in particular, allowed the seriouly ill monks to attend mass from their rooms. The nave was, therefore, the common room for the sick. The kitchen and various services were located outside the infirmary walls. «(...) In France a particularly telling example is the Hopital de Tonnerre (*p. 47)*. Built in 1293, it consisted of a single great nave over 300 ft. long subdivided down each side into cubicles for the sick. Each cubicle held one bed that could be curtained off from the communal space, at one end of which was the chapel area dominated by the altar where mass was celebrated»[5].

«The hospitals constructed by the bourgeoisie in Europe's rapidly growing medieval cities stand apart from the ecclesiastical institutions. They were civic buildings commisioned by the municipality and were usually constructed as spacious halls with high-pitched roofs. Though often run by religious orders, they are definitely civic, urban buildings, founded either by wealthy merchants or by city governments»[6].

Medieval hospitals saw a cruciform layout; this is also the case of some Italian hospitals. Among one of the oldest welfare institutions, there is the Hospital of Santa Maria Nuova (*p. 48)* in Florence, just outside the city walls. The hospital wards developed in the shape of a cross with the long arm for male patients and the shorter for females. The internal courtyards gradually evolved to include the *Medicherie* (Medication) and the *Ossa* (Bones) cloisters, the former added in 1420 and the latter, the site of the cemetery of the Sant' Egidio church.

«The hospital 'Cà Granda' (*p. 49)*, later defined 'Maggiore', designed by Filarete in 1456 in Milan, is a prime example of the Renaissance healthcare re-organization, characterized by a pronounced interest for architectural innovation. The goal of this project was to give a rational solution to the different needs of hospital's users»[7].
Vasari defined it as «a building without equal throughout Europe»[8]. The plan is rectangular and is the first one to employ the cross plan as an architectonic feature. Originally, the cross-plan had a chapel in the middle, but some elements of its design disappeared during the construction.

Furthermore, issues as hygiene highly influenced the design of the hospital, in general, careful to aspects such as space, air quality, ventilation (with the avoidance of noxious odors) and light. The planning of the sewer system with certain degrees of inclination allowed the architect to serve the building through an underground system of canals. This hospital was also a symbol of the beginning of non-religious hospitals and the centralisation of healthcare in the city (Mens and Wagenaar, 2010).

Hospitals were now truly urban institution, located in the heart of the city itself, like La-Pitié-Salpêtrière in Paris, founded in 1656, and the St. Bartholomew's Hospital in London of 1123.

The famous Hôtel-Dieu in Paris had, by 1772, been completely destroyed by two fires and citizens started to claim the right to be cured in better places. Moreover, the publication of the book *L'homme machine* (Man a Machine) by Offray de Lamettrie in 1747 changed the way of thinking. In an intellectual atmosphere dominated by Diderot and Voltaire, the term *machine à guérir* (machine for healing) was coined for the first time (by Condorcet, Lavoisier, Tenon et al.) to describe a hospital for the future. «The new typology envisioned by the commission for the Hôtel-Dieu, as well as for other

hospitals, should have been based on: a pavilion system with a minimum distance among them of no less than the double of the high of the building's floors; division of men and women into the wards; a bed for each patient; allocation of no more than 36 beds in two parallel rows for each ward; staircases opened and ventilated from the outside; windows extended until the ceiling»[9].

The Baroque hospitals had the aspect of urban palaces and the hospital became an urban landmark of lasting architectural quality.

During the so-called Nightingale Era (*p. 50)*, the architecture was characterized by the following elements: a central space that was a large quadrangle, surrounded by detached ward blocks. Each open ward could host no more than 30 patients and was one level in height. «The interior of the first Nightingale wards were rather utilitarian yet attractive. The plaster walls were unadorned and were painted white in most cases»[10] . Nightingale's influence was profound in the military hospitals built in this period.
The final breakthrough for the pavilion model was brought about by the construction of the 900-bed Hôpital Lariboisière in Paris (*p. 51)*, designed by Martin-Pierre Gautier and finished in 1854.

Pevsner quotes Husson, "It presents all the conditions of well-being and healthiness which an establishment of this nature can provide"[11]. Built due to the fortune of a wealthy contess and to respond to a cholera epidemic that reached Paris in 1832, the hospital plan was characterized by ten pavilions. Each of these were, in turn, divided on the basis of their specialization; there were, moreover, a central administration block and a courtyard. A very long corridor connected all the pavilions. Furthermore, both the Nightingale and the Lariboisière contained nature: flowers, plants, and in some cases pets, were important therapeutic elements.

The I World War saw innovations in transportable military hospitals, with tents containing the overall hospital. Field Hospital Number 353 of the 80th Division, United States Army is one of those. The hospital was organized in three echelons and was transported via truck convoy. Hospital infirmary trains and hospital barge infirmaries were other types of movable hospital used during World War I. The MASH (Medical Army Surgical Hospital) became spread during the Korean War in the 1950s. In the 1920s the first specialized hospitals began to appear; among those, also children's hospitals.

As Beatriz Colomina explains in her publication, «modernity was driven by illness»[12] and modern architecture was highly shaped by Tuberculosis (TB) and X-rays. The rise of tuberculosis, in fact, provided spaces for heliotherapy in Europe and America. Alvar Aalto with his modernized version of the sanatorium building type at Paimio (*p. 52)* in 1927 should certainly be mentioned. Many avant-garde architects of the early decades of the 20th century, from Le Corbusier to Jan Duiker or Richard Neutra, presented their new architecture as a kind of medical equipment for protecting the body and, therefore, health was undeniably the preoccupation of several key figures of modern architecture[13].

The patients were isolated from the community to prevent the contagious disease from spreading. The fresh air of the pine forest was thought to ease the symptoms, and this is one of the reasons for the sanatorium's somewhat remote location. The patients rested there lying down. Originally, each floor of the patient wing had an open, terrace-like dormitory. The patients, whose condition allowed it, were encouraged to make walking trips into the sanatorium's surroundings and along the serpentine path in the south yard.

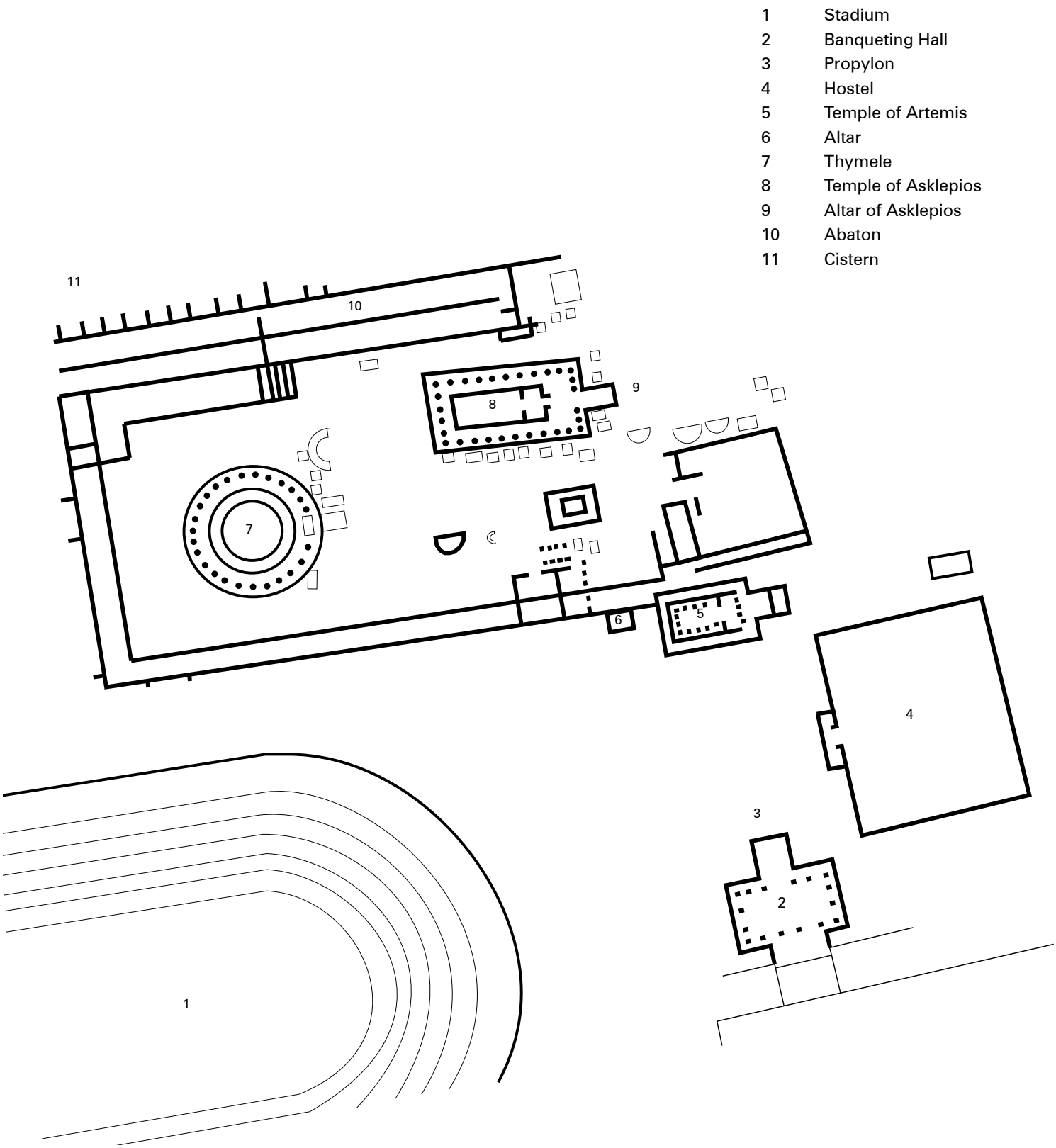
It becomes visible at this point and from the following drawings, how the dimensions started to decrease.

Most of the hospitals in the twentieth century followed a modern trend, by applying new materials and up-to-date logistic insights. The results vary, at best, between the pavilion type in open grounds or, more often, as a high-rise, skyscraper building. The Beaujon Hospital of Clichy (Paris), built between 1932 – 1935, is just an example of these factory-like hospitals, which sprung up all over the world. The thirteen-story high with 1100 beds, east-west orientated building is described (on the French website PAPHE), as a 'composition horizontale de type pavillionnaire et la disposition verticale fonctionelle', but seems a long distance away of the original intentions of the pavilion-type of hospital. Another example is the hospital 'Am Steinhof' in Vienna (Austria), now called the Otto Wagner Hospital, with sixty pavilions, and included a church, organ, sculptures, stained-glass window, etc.

The 1950s and 1960s saw the evolution of the suburban hospital and unsustainable megahospitals' typology. We can think, for example, of the "New Venice hospital" is an unbuilt yet renowned project by Le Corbusier (*p. 53)*. The program was a large center with 1200 beds intended for the acutely ill and for emergency cases. The number of users and the nature of the project demanded the planning of a building which is in fact a small city in itself, concretely blurring the limits between urban planning and architecture.

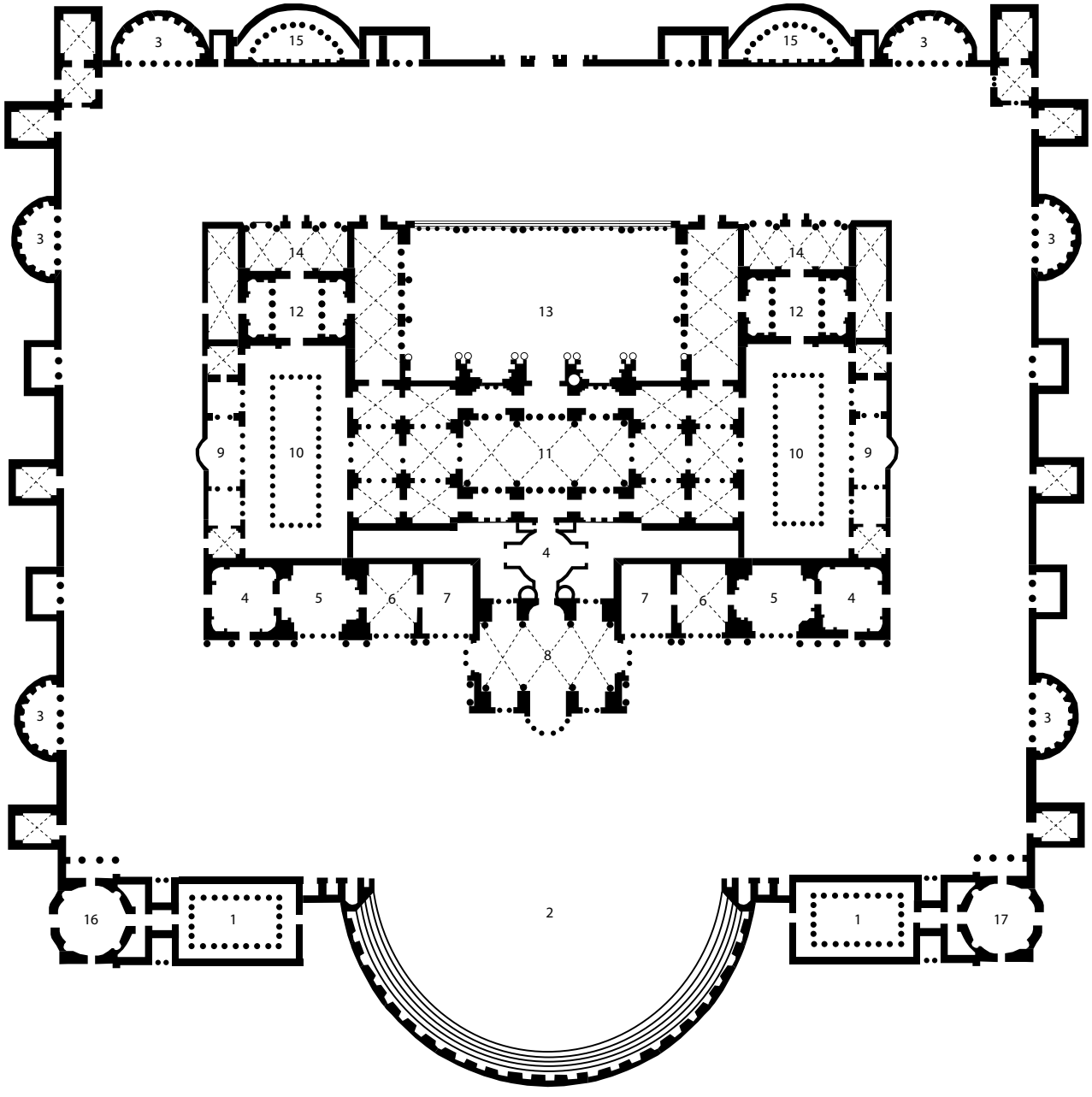
After being a monument and a machine, how will the hospital of the future look like? Could the hospital become an efficient home?

[1] Lacanna G. "Med/Architecture: the Typological evolution of Paradoxical Buildings", *ICAUD International Conference in Architecture and Urban Design,* no. 293 (May 2014): 293-2.
[2] Spiro F. *Pausaniae Graeciae descriptio*. Book 2, chapter 27. Teubner, Leipzig, 1903:197.
[3] Pimlott M. *The Public Interior as Idea and Project* (Prinsenbeek: Jap Sam Books, 2016): 195.
[4] Risse G. *Mending Bodies, Saving Souls: A History of Hospitals* (Oxford: Oxford University Press, 1999): 15.
[5] Stone P. J, "Elements of the Hospital: 1300-1900", *AR* (June 1965): 413.
[6] Wagenaar, C. *Five Revolutions: a Short History of Hospital Architecture. The Architecture of Hospitals* (Rotterdam: NAi Publishers, 2006), 27-28.
[7] Lacanna G., *op. cit.,* 293-4.
[8] Vasari G., *Vite de' più eccellenti pittori, scultori e architectti scritte da Giorgio Vasari pittore aretino con nuove annotazioni e commenti di Gaetano Milanesi* (Florence, 1906), 2:456.
[9] Vasari G., *op. cit.,* 2:456.
[10] Verderber S. *Innovations in Hospital Architecture* (London: Routledge, 2010), 21.
[11] Pevsner N. *A History of Building Types* (Princeton: Princeton Press, 1976), p. 154.
[12] Beatriz Colomina, *X-RAY Architecture* (Zurich: Lars Müller Publishers, 2019), 11.
[13] Many examples can be found the above mentioned book.



Asclepius Temple, Greece, 600 BCE Drawn by the author, 2019

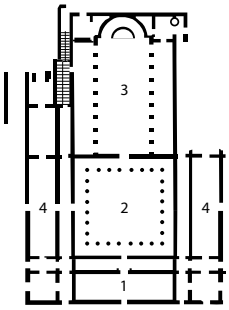
1	Library	11	Tepidarium
2	Theatre	12	Tablinum
3	Exedrae	13	Frigidarium
4	Laconicum	14	Cold Baths
5	Warm Baths	15	Baths or courts
6	Small Caldarium	16	Domed Hall (now church of S. Bernardo)
7	Sudatorium	17	Domed Hall (now part of a school)
8	Caldarium		
9	Ephebeum		
10	Peristyle		



0 25 50 m

Baths of Caracalla, Rome, 212 BCE Drawn by the author, 2019

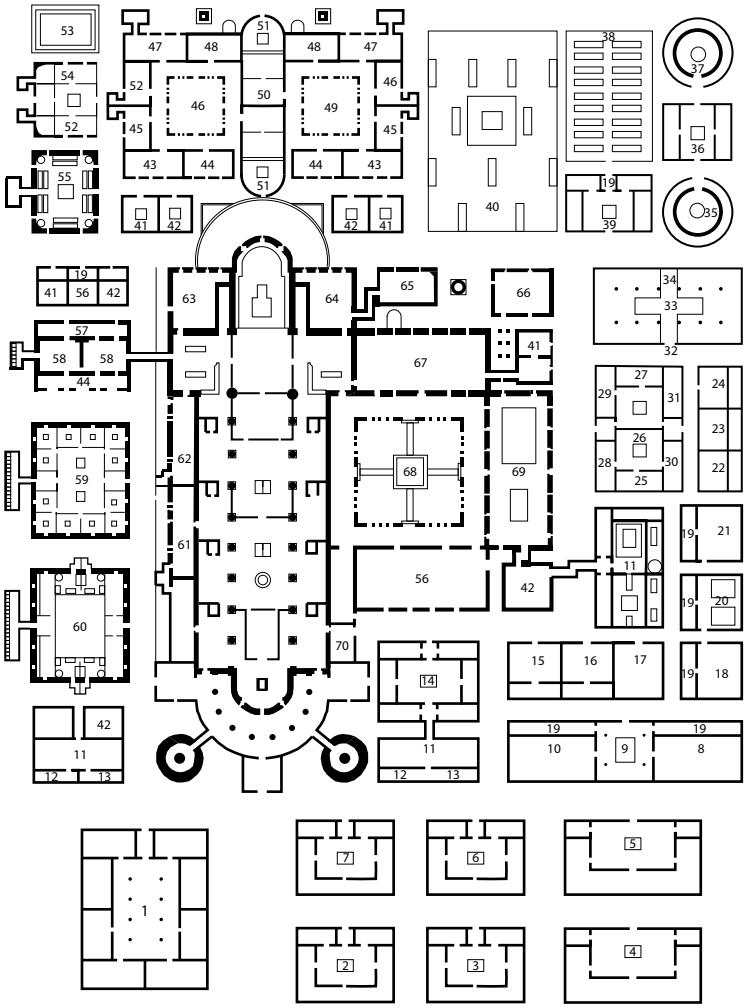
1 Entrance
2 Courtyard
3 Ward
4 Service areas



0 25 50 m

Xenodocheion, Porto (near Rome), 397 Drawn by the author, 2019

1	Large building (unknown)	18	Drying Kiln	36	Fowl keeper	54	Physician
		19	Servants	37	Geese	55	Bloodletting
2	Servants	20	Mortar	38	Vegetable garden	56	Cellar
3	Swine	21	Mill	39	Gardener	57	Abbot's House
4	Mares, Foals	22	Goldsmith	40	Cemetery, Orchard	58	Sleeping, Sitting room
5	Cows	23	Blacksmith	41	Bathroom	59	School
6	Goats	24	Fuller	42	Kitchen	60	Guest House
7	Sheep	25	Grinders	43	Refectory	61	Schoolmaster
8	Oxen, Hayloft	26	Chamberlain	44	Store room	62	Visiting Monks
9	Servants' room	27	Shieldmaker	45	Master	63	Scriptorium, Library
10	Horses, Hayloft	28	Shoemaker	46	The sick	64	Sacristy, Vestry
11	Brewery, Bakery	29	Saddlers	47	Sleeping room	65	Holy Bread, Oil
12	Beer	30	Turner	48	Warming room	66	Privy
13	Paste	31	Currier	49	Novitiate cloister	67	Dormitory
14	Pilgrims	32	Threshing	50	Chapel	68	Monks' cloister
15	Cooper	33	Barn	51	Altar	69	Refectory, Vestiary
16	Turner	34	Grain storehouse	52	Critically ill	70	Master of the Hospice
17	Granary	35	Hen	53	Medical garden		

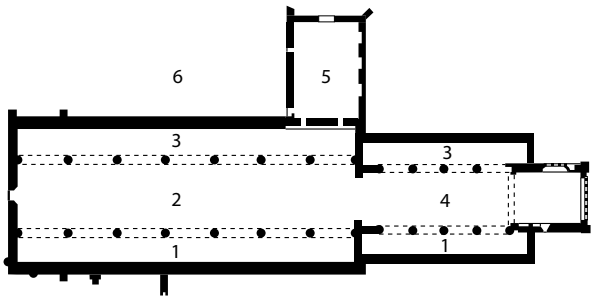


0 25 50 m

St. Gallen, Switzerland, 820 AD

Drawn by the author, 2019

1 South Aisle
2 Infirmary Hall
3 North Aisle
4 Chapel
5 Table Hall
6 Kitchen

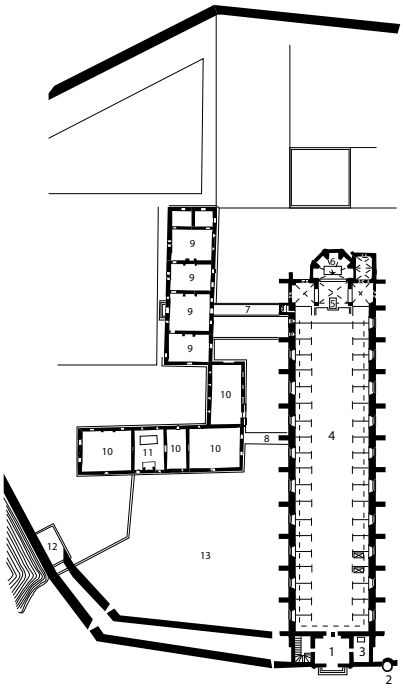


0 25 50 m

Monastic Infirmary, Canterbury Cathedral, 1100 AD

Drawn by the author, 2019

1	Porch	8	Service Gallery
2	Public Well	9	The Queen’s Lodgings
3	Little Chapel	10	Service Buildings for the Hospital
4	Ward	11	Kitchen
5	Founder’s Tomb	12	Wash House
6	Altar	13	Cemetery
7	The Queen’s Gallery		

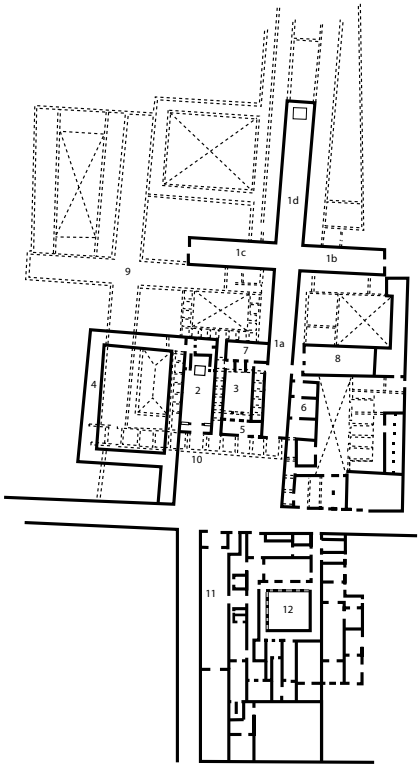


0 25 50 m

Hospital Tonnere, France, 1293

Drawn by the author, 2019

1a	Initial section of men's ward (1313-1315)	4	Old Cemetery
1b	Eastern wing of men's ward (1334)	5	Director Office
1c	Western wing of men's ward (1479)	6	Pharmacy
1d	Final section of men's ward (15th c.)	7	Refectory?
2	S. Egidio Church	8	Refectory or kitchen
3	Courtyard	9	Later women's ward
		10	Buontalenti's facade (built in 1599)
		11	Original women's ward
		12	Women's cloister

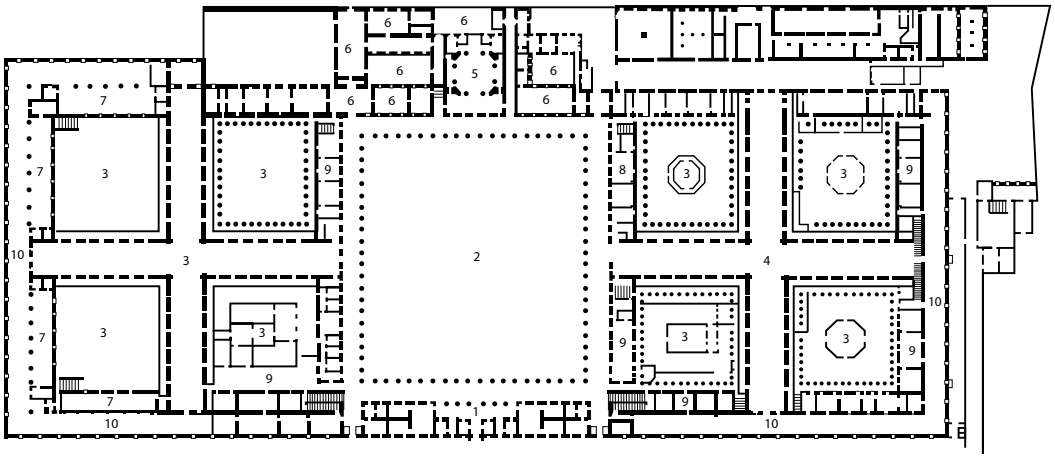


0 25 50 m

Santa Maria Novella Hospital, Florence, c. 1500

Drawn by the author, 2019

1 Entrance
2 Main courtyard
3 Courtyards
4 Care facilities (crossward, latrines)
5 Church
6 Administration (archive, library)
7 Women ward
8 Men ward
9 Serving rooms (kitchen, bath, laundry, mill, etc.)
10 Hospital Loggia

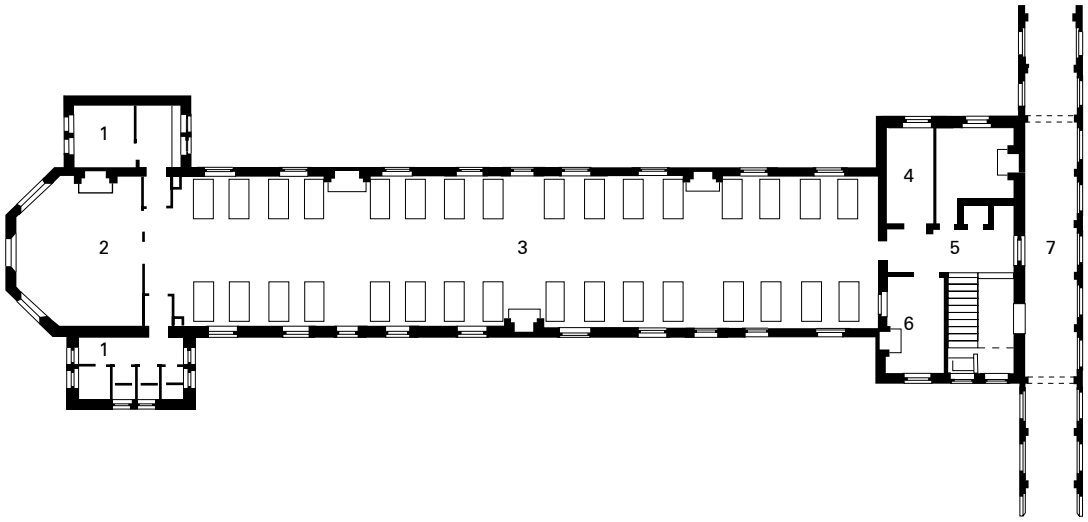


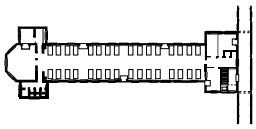
0 25 50 m

Filarete, Hospital Ca' Granda, Milan, 1456

Drawn by the author, 2019

1 Bathroom
2 Day room
3 Ward
4 Store
5 Lobby
6 Nurse’s lounge
7 Corridor



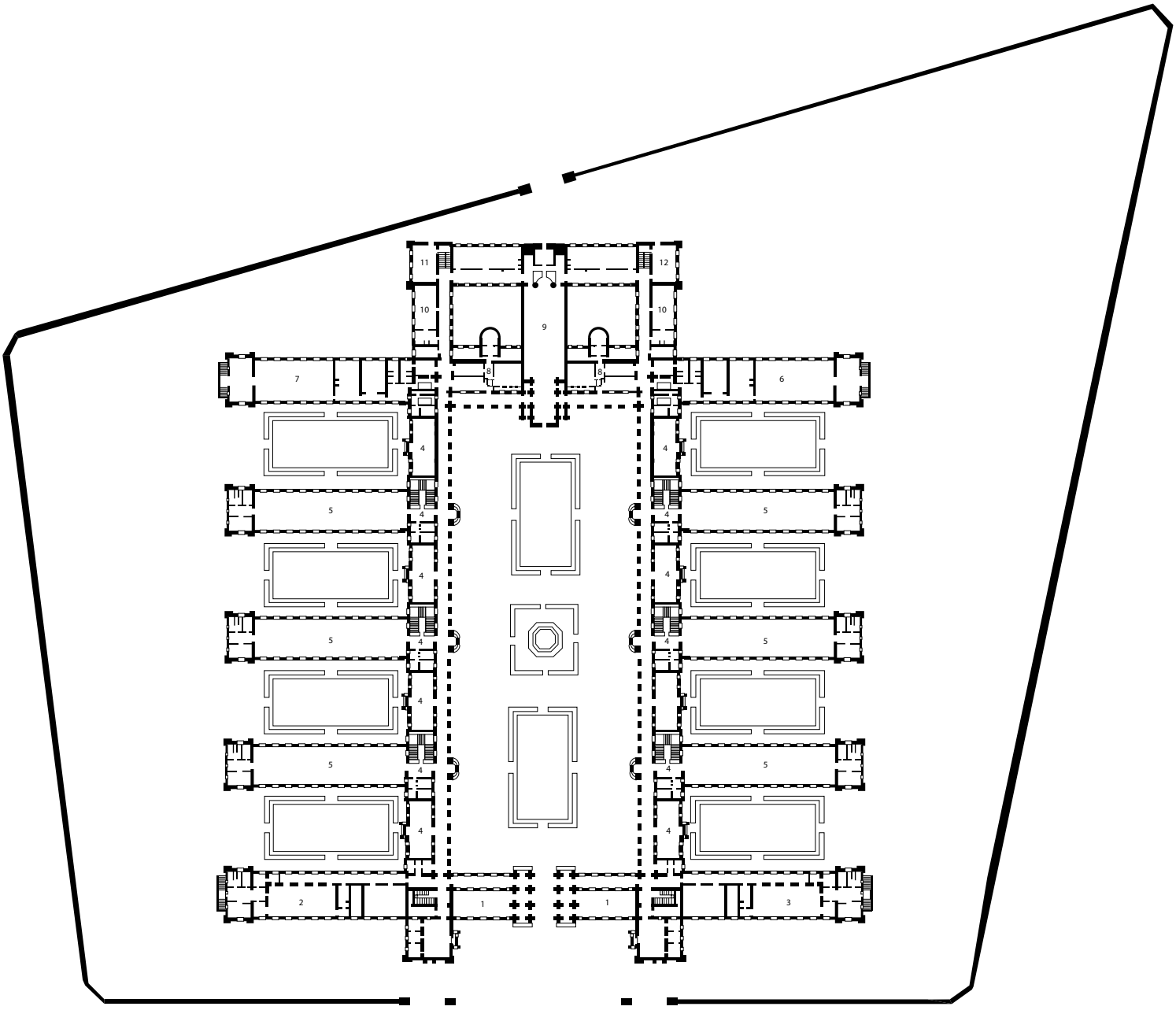


0 25 50 m

Typical plan of a Nightingale ward, 1870s

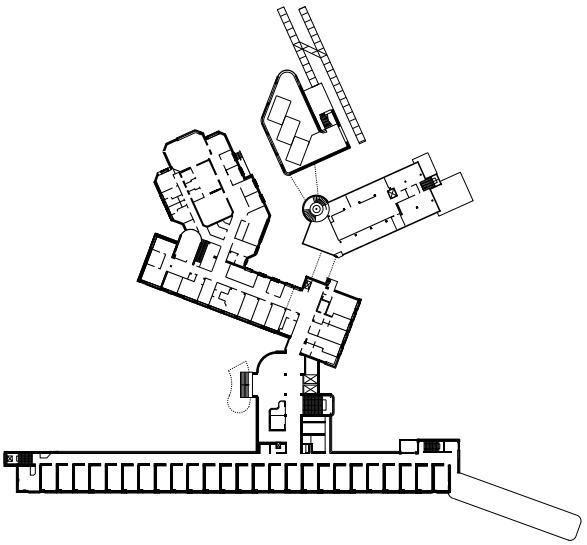
Drawn by the author, 2019

1	Offices	6	Laundry, Clothes store, Dormitories of service girls
2	Kitchen, Doctors and Staff rooms		
3	Pharmacy, Doctors and Staff rooms	7	Community area
		8	Toilets
4	Calefactories	9	Chapel
5	Buildings for sick people	10	Amphitheater
		11	Storage, School
		12	Stable, Room of Death



0 25 50 m

Lariboisière Hospital, Paris, 1846-53 Drawn by the author, 2019



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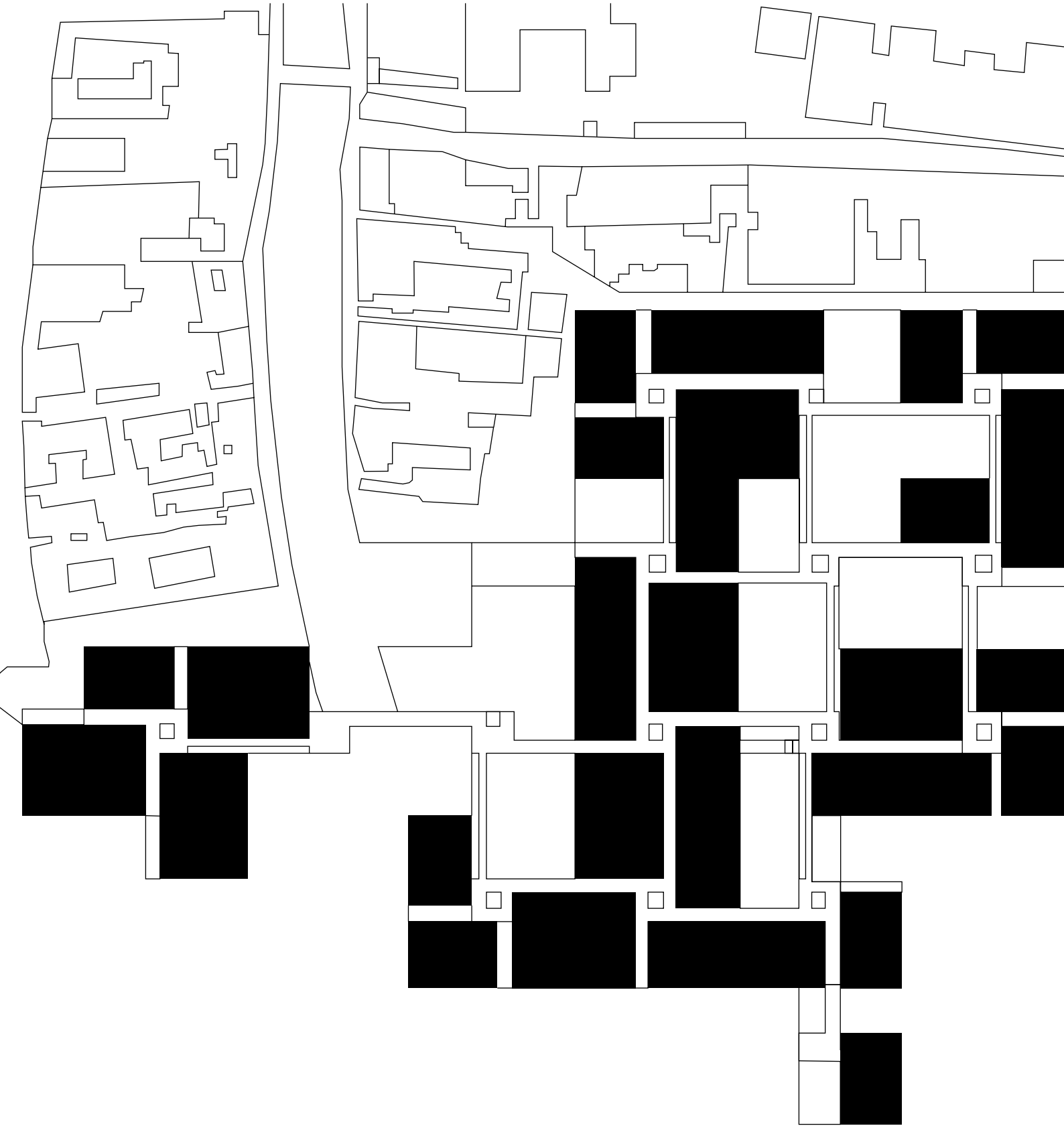
Alvar Aalto, Paimio Sanatorium, Paimio,1929

Drawn by the author, 2019



0 25 50 m

Le Corbusier, Venice Hospital, unbuilt, 1965

Drawn by the author, 2019

Visualized Evidence

As Mukherjee writes in his book “The Emperor of All Maladies”, “Science begins with counting. To Understand a phenomenon, a scientist must first describe it; to describe it objectively, he must first measure it.” Hence, to describe the future of healthcare is necessary to understand the forces shaping it. The *Hospitable Hospital* builds on these shaping forces. In particular, it accomodates social needs forecasted in the 2050 scenario.

The future of healthcare is much less centered around institutions. It’s rapidly becoming decentralized, dematerialized, demonetized — and, ultimately, democratized. As healthcare becomes more data-driven, it is also becoming more personalizable.

Aging and growing populations, greater prevalence of chronic diseases, exponential advances in innovative, but costly, digital technologies—these and other developments continue to increase health care demand and expenditures.

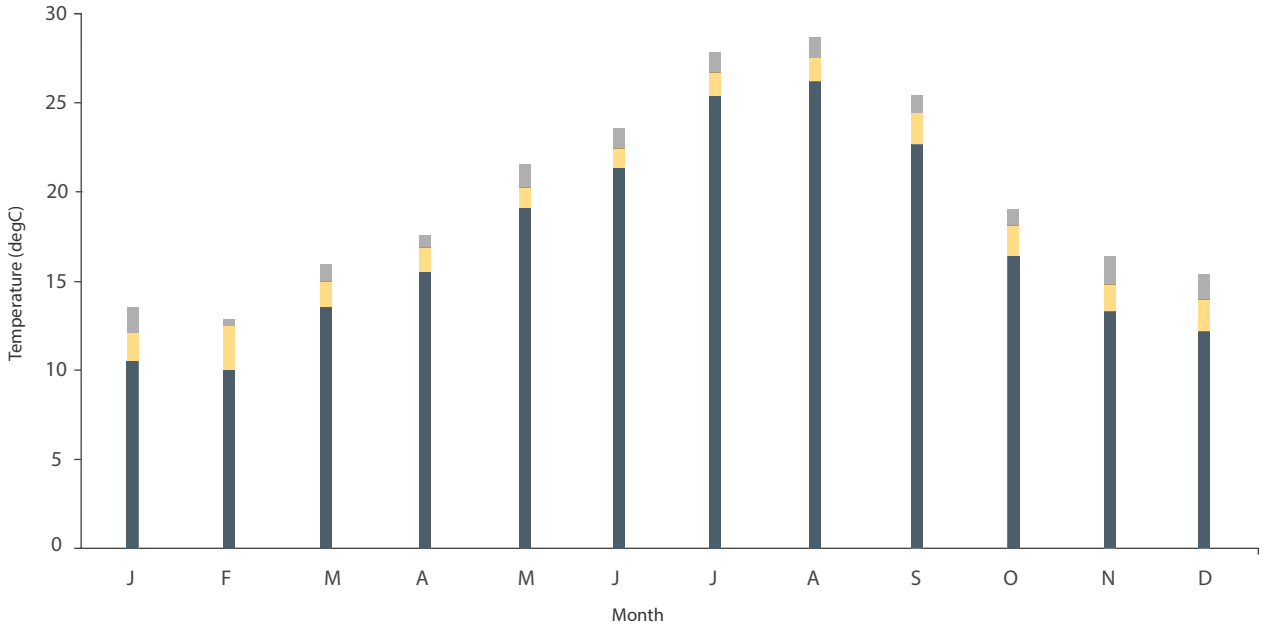
The project, therefore, always fluctuates between quality and quantity, sentimentality and apathethic data. This section includes both drawings such as a map with the leading paediatric hospitals at larger scale and data concerning population’s composition, climate changes, etc.

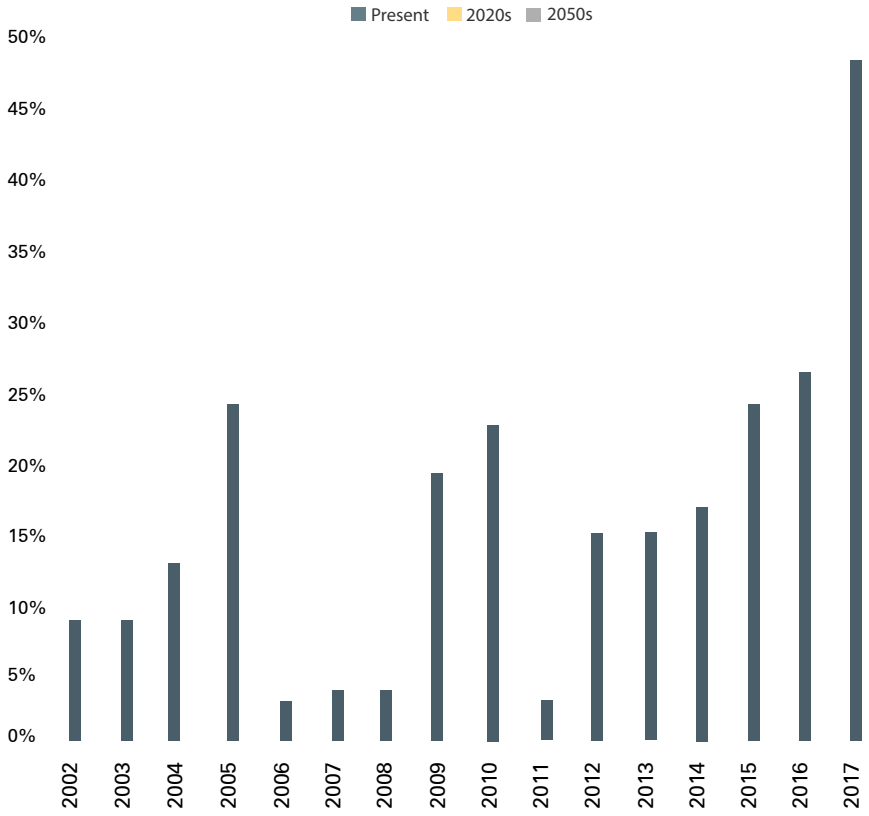


0 50 200 km

Leading children's hospitals

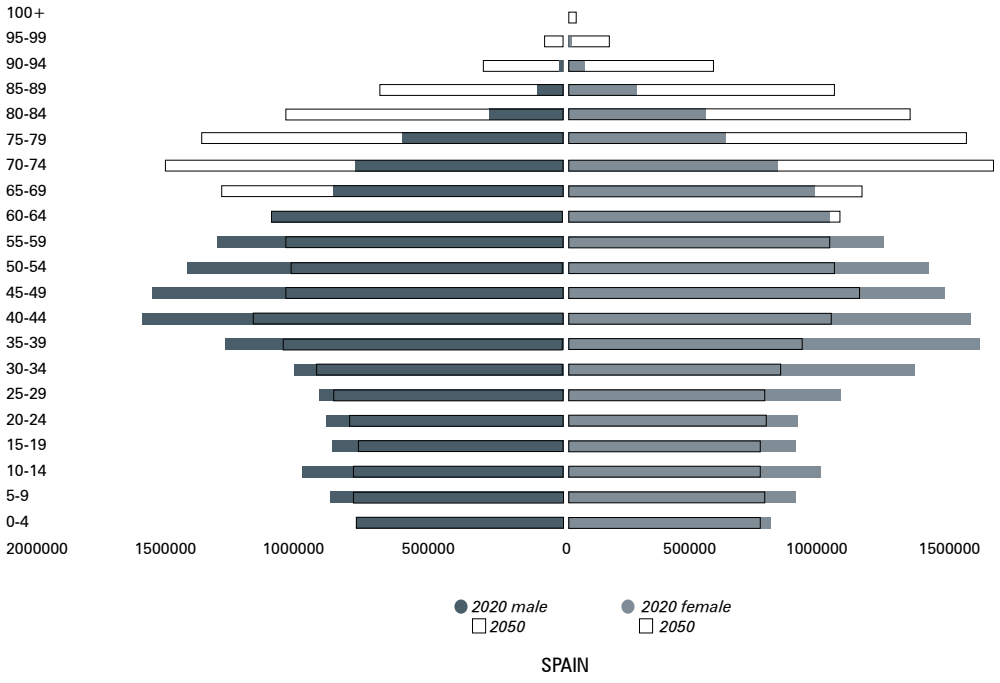
Francesca Giudetti, 2019

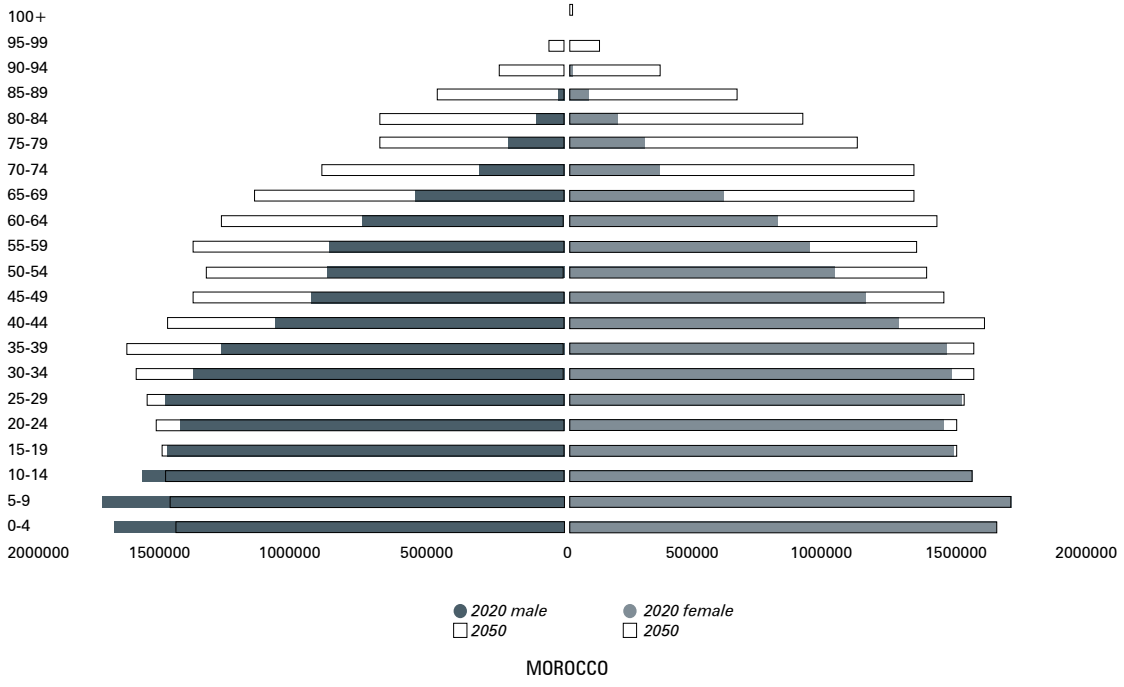




From top to bottom:
Climate change and temperatures in Southern Spain;
Percentage of sick children in Gibraltar by year

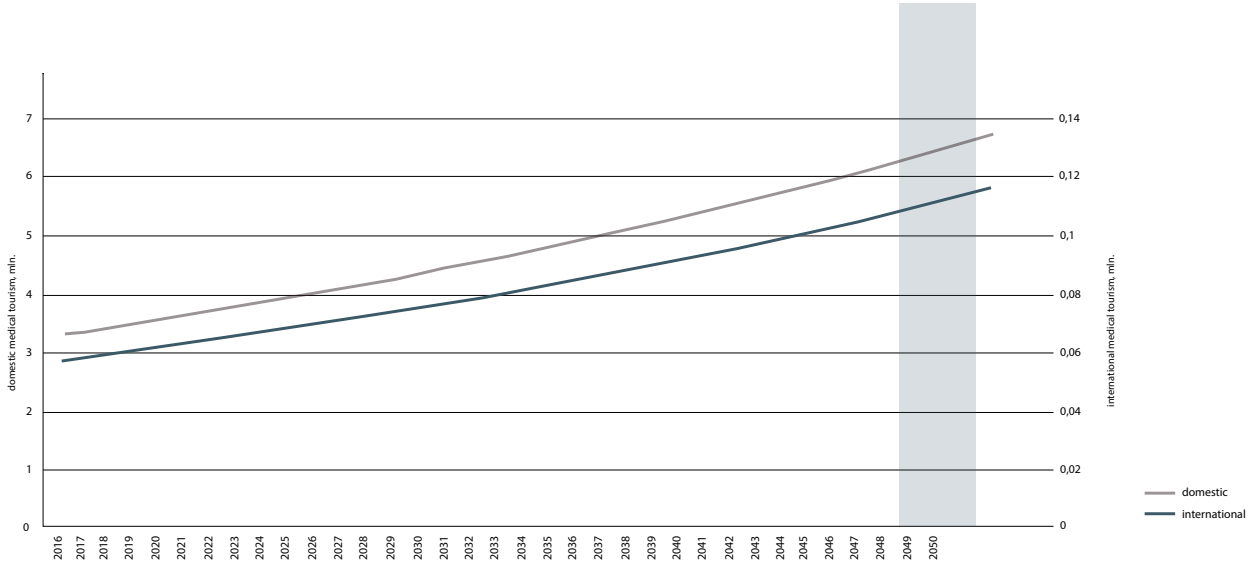
Data visualization by the author

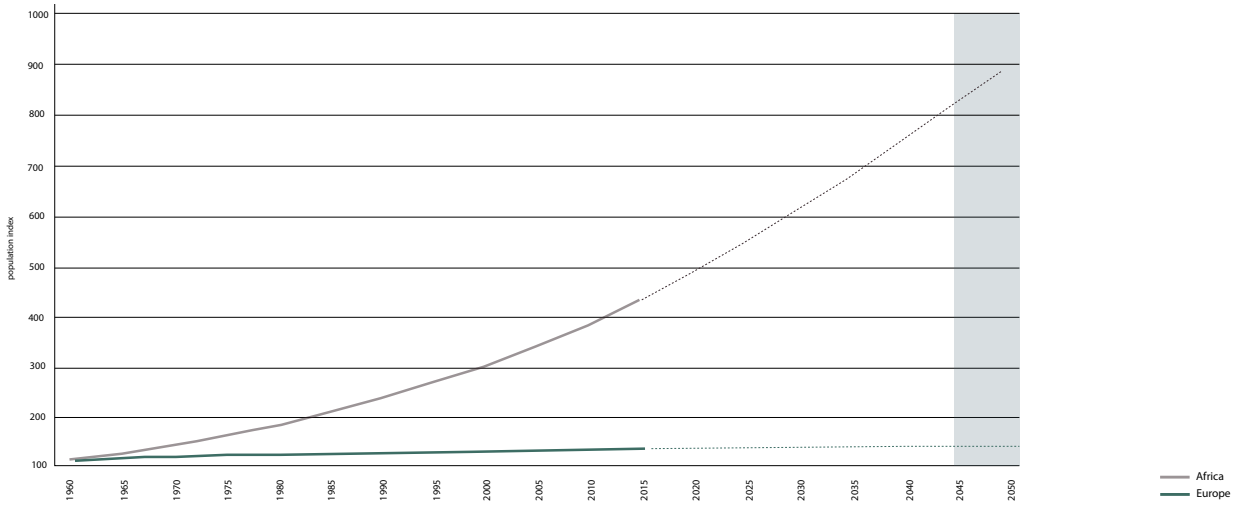




Spain and Morocco Population Pyramid, projection 2020-2050

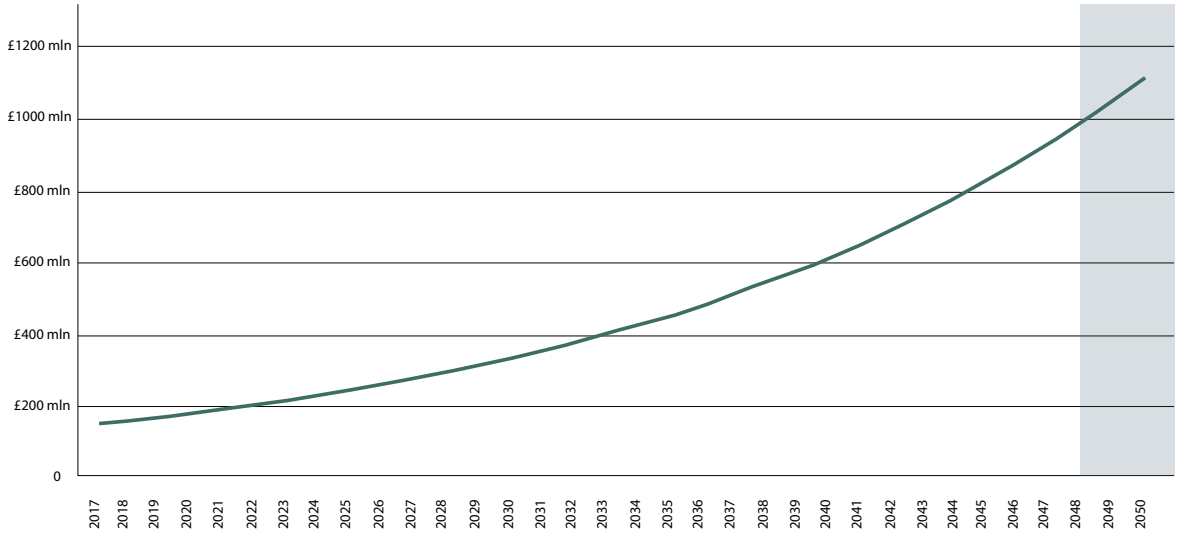
Data visualization by the author

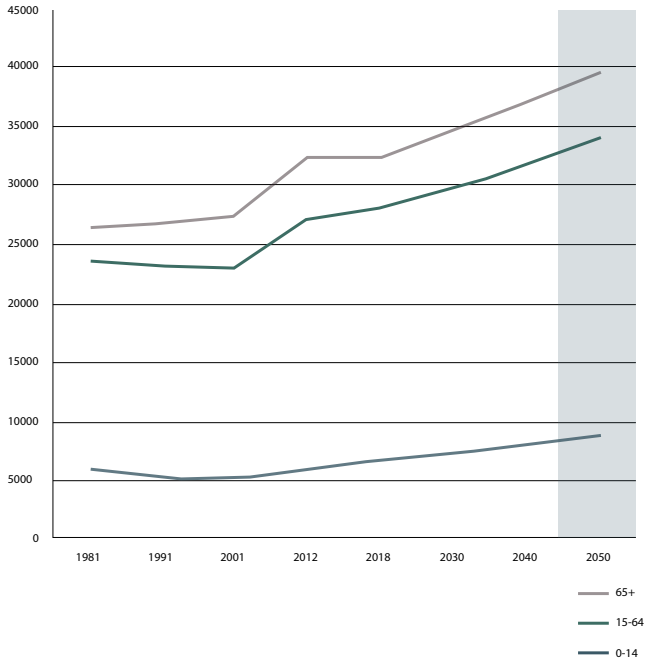


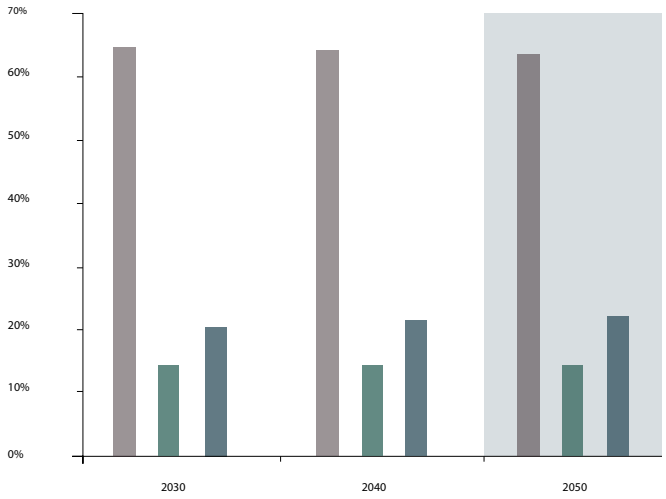


From top to bottom:
Medical tourism trends in Europe
Source: Medigo;
Medical tourism trends in Europe
Source: Eurostat

Data visualization by the author

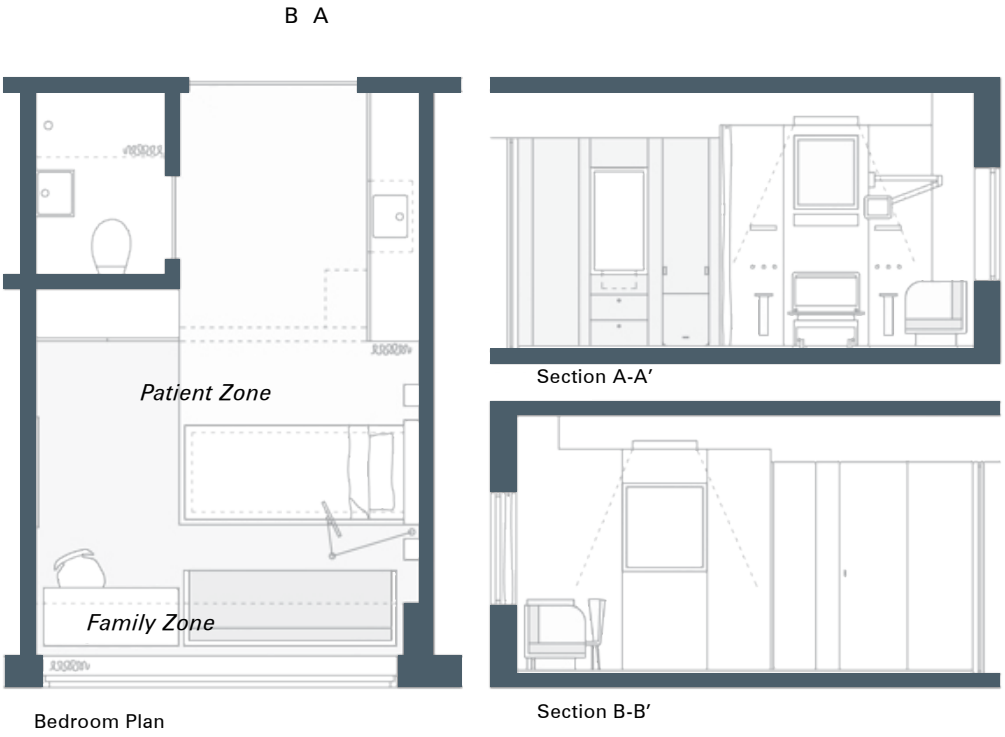


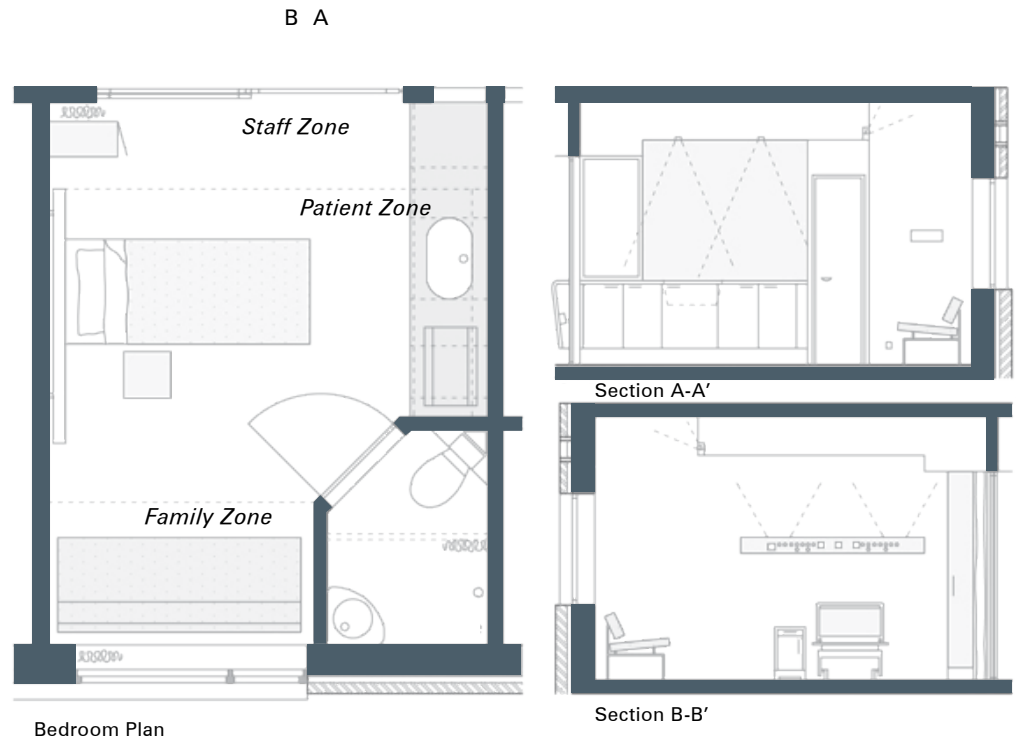




From top to bottom:
Gibraltar: Health Expenditure
(Source: Extrapolation from Gibraltar Budget 2017, 2018, 2019)
Gibraltar: Population Forecasting by age groups

Data visualization by the author

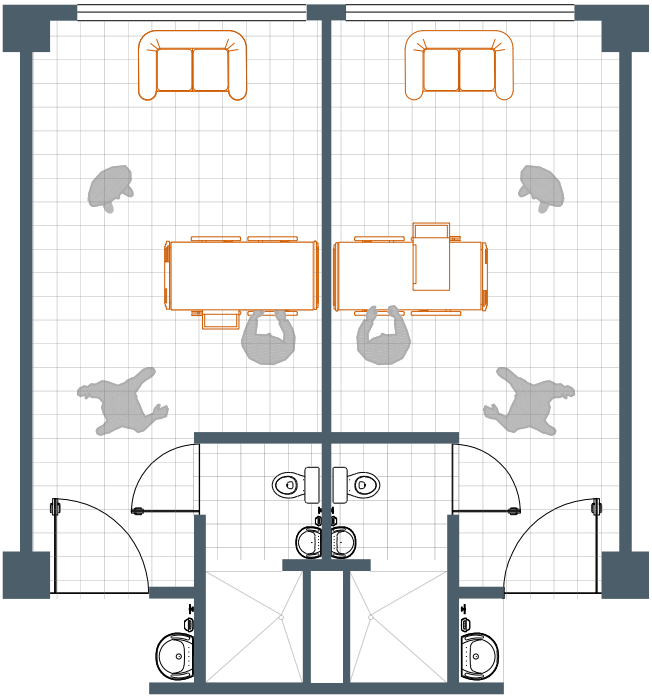


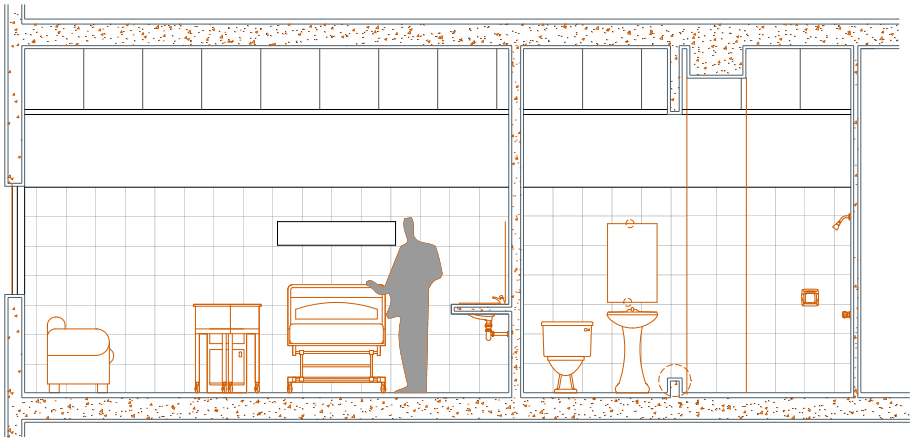


0 1 2 m

From top to bottom:
OD205 Architects, Emma Children Hospital, Amsterdam, 2015;
EGM architecten, Wilhelmina Children's Hospital, Utrecht, 1998

Bedroom layout analysis in Dutch hospitals





0 | 2 | 4 m

Typical plan and section of a pediatric ward's room

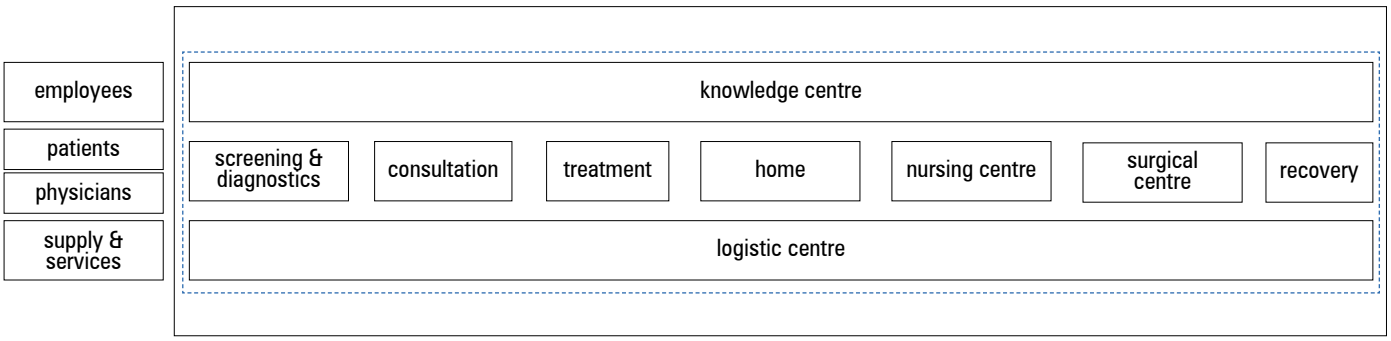
«Sufferers are sent to a "sanatorium" (the common word for a clinic for tuberculars and the most common euphemism for an insane asylum). (…) The metaphor of the psychic voyage is an extension of the romantic idea of travel that was associated with tuberculosis. To be cured, the patient has to be taken out of his of her daily routine. It is not an accident that the most common metaphor for an extreme psychological experience viewed positively–whether produced by drugs or by becoming psychotic–is a trip.[1]»

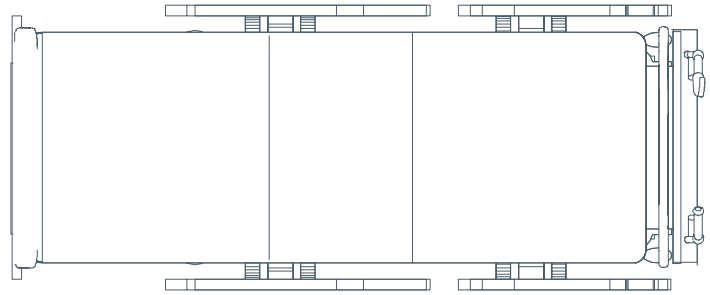
This chapter is a trip that retraces and shows a selection of hospitals–built and unbuilt–from the first Renaissance children hospital in Florence to the more recent ones.

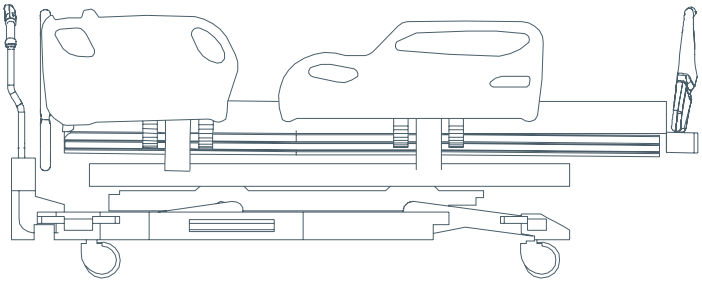
Within this anthology, the main references are two projects:
1. "The House of Hope, House of Birth, Houses of No Return" by Raimund Abraham (1979);
2. The Debré Hospital in Paris by Pierre Riboulet (1980).

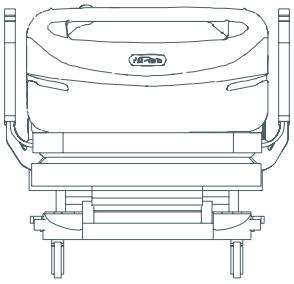
The first one is referenced for its specific way of conveying a message through a sectional perspective. In the same area, that is Cannaregio in Venice, where Le Corbusier designed his unrealized project, Abraham envisioned a new Venice that would intensify the original elements of the city such as the lagoon, the houses, the canals.
On the other hand, the Parisian project moves against the tradition of hospitals "bars/towers"and takes advantage of the terrain's steep slope by integrating the hospital on the hill. The Hospital Street extends inside the hospital and gives access to green terraces. The way of describing the design process of the hospital is new: the architect, in fact, kept a diary for five months and narrated the site conditions, the concerns of users, the working and ideas' flow, the materialization of the new architecture, both open to the city and to light.
Riboulet's interior journey is referenced for its specific morphological response to a set of delimited site conditions. This is found relevant within the project that seeks to re imagine the singular architectural intervention at a smaller scale.

[1] Sontag S. *Illness as Metaphor* (USA: Farrar, Straus & Giroux, 1978), 35-36.

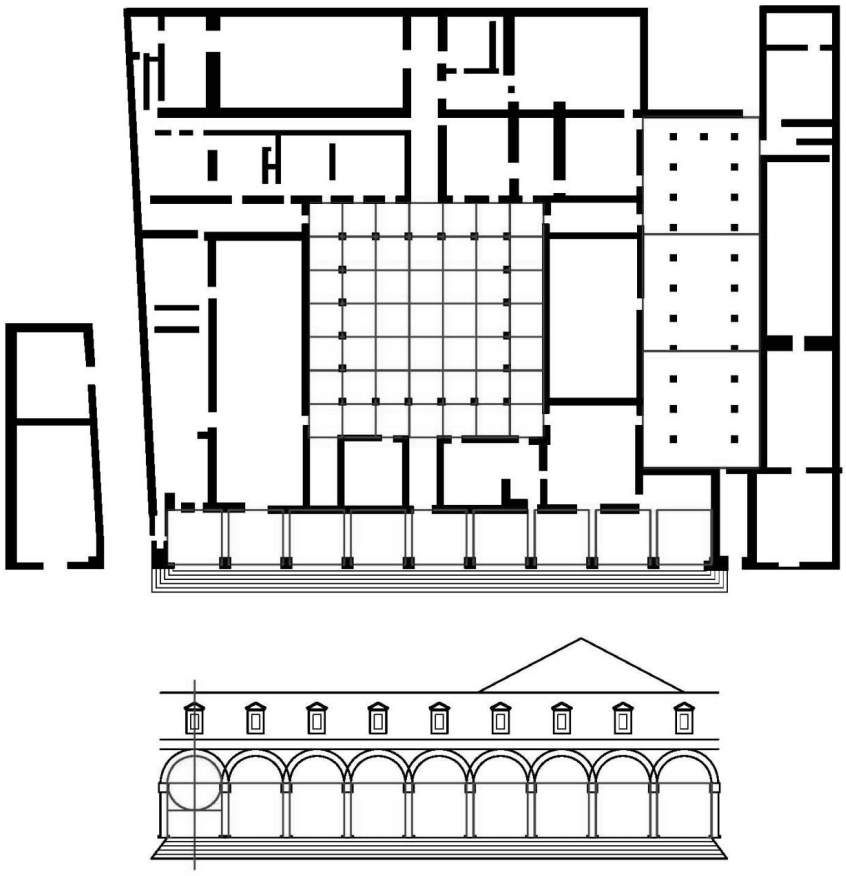








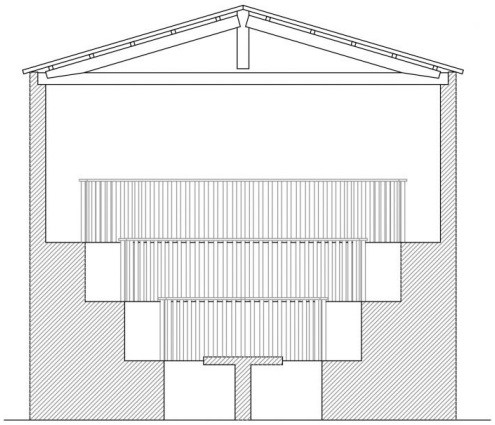
Francesca Giudetti, *Hospitable Hospital*
model and bed views

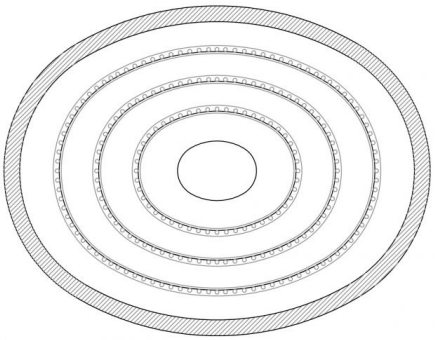


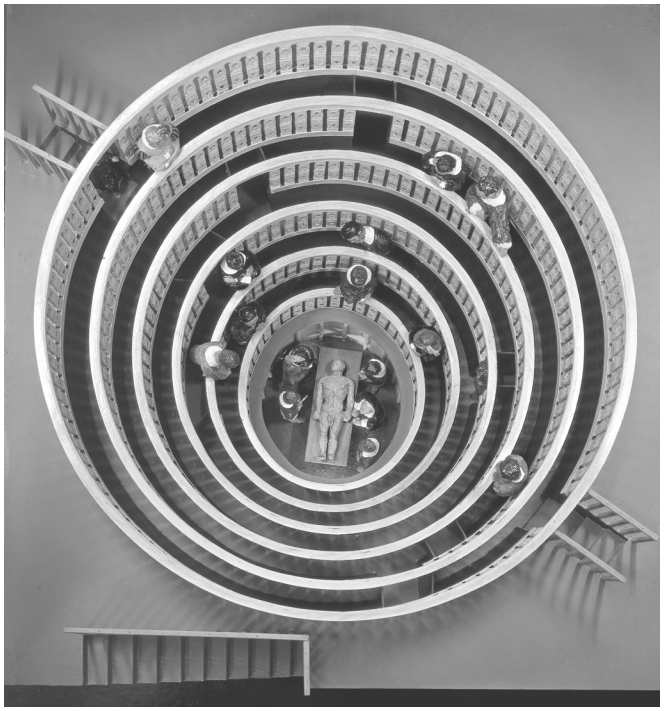


Top: F. Brunelleschi, Hospital of the Innocents, Florence, 1445

Bottom: Matthew A. Cohen, photo of the Ospedale degli Innocenti, Florence

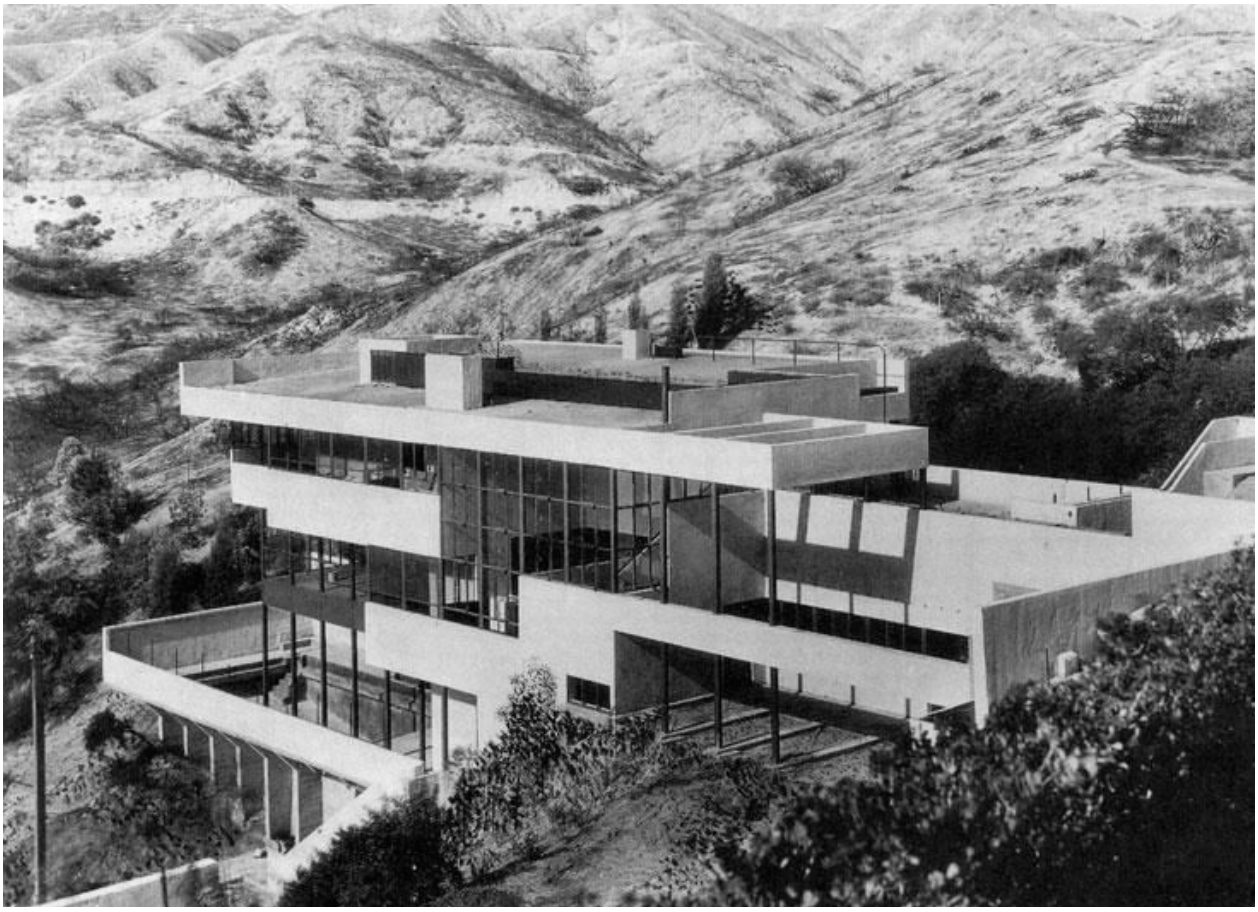


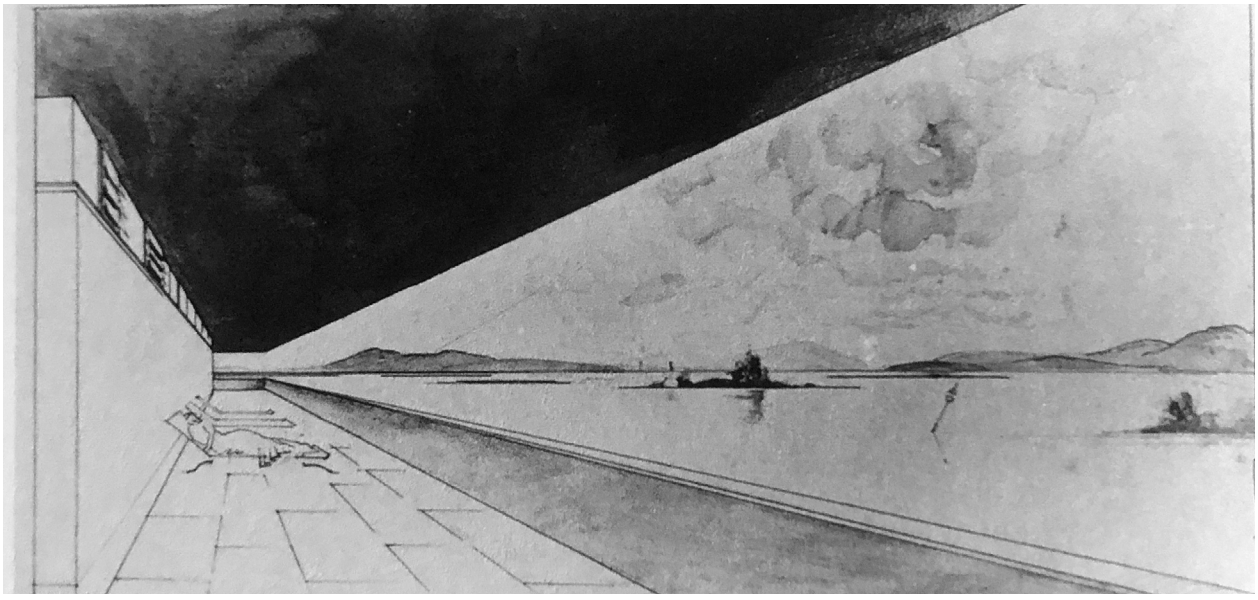




Top:
P. Sarpi, D. Varotari, Anatomical Theatre, Padua, Italy, 1594

Bottom: Anatomical Theatre, Diorama, Padua, Italy, 1594

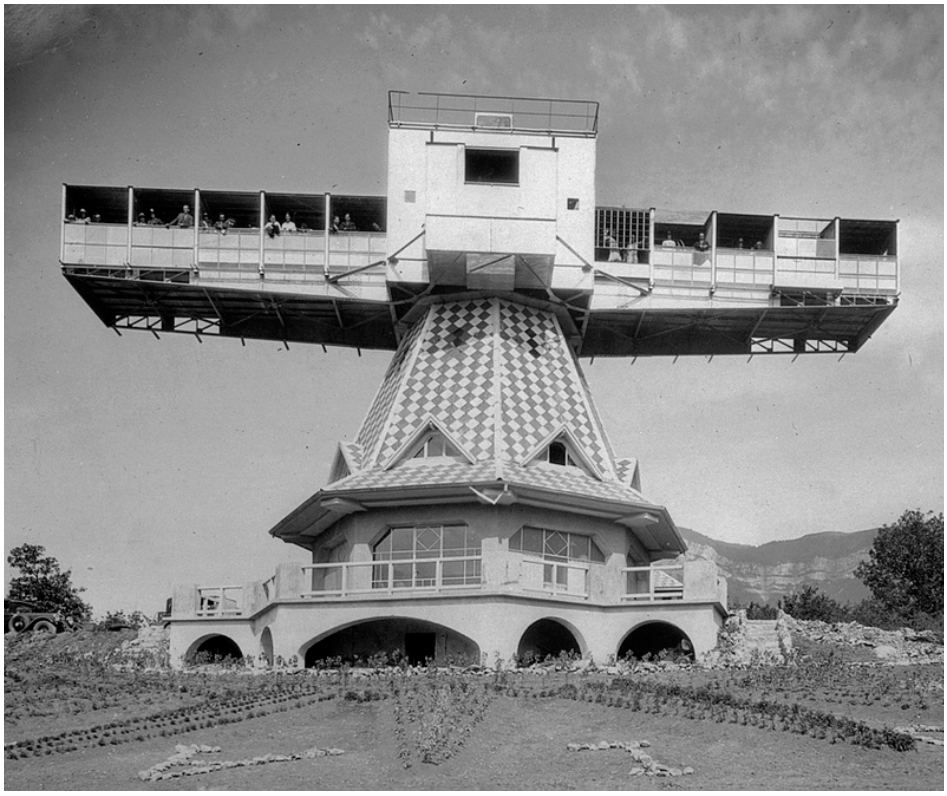




Top: Richard Neutra, Lovell Health House, Los Angeles, 1927-29

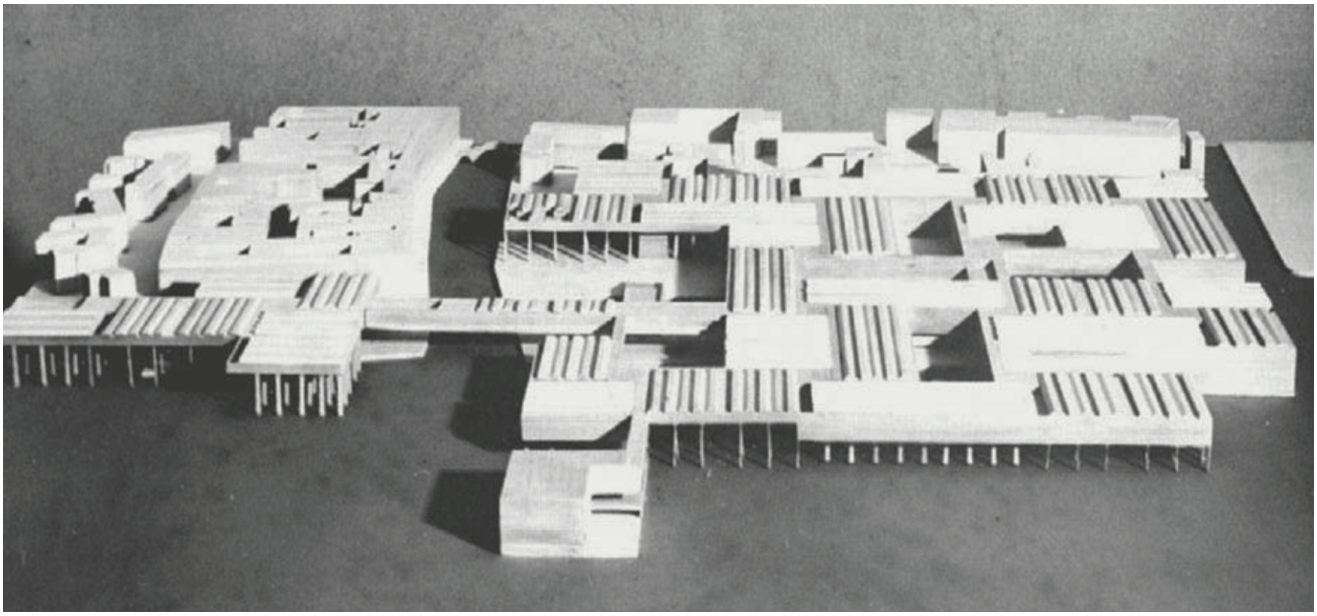
Bottom: Alvar Aalto, Kinkomaa tuberculosis sanatorium project (unrealized), perspective drawing, 1927

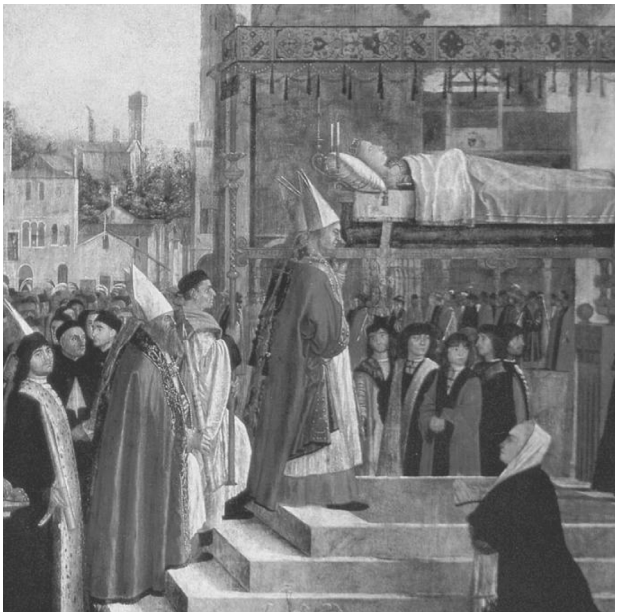


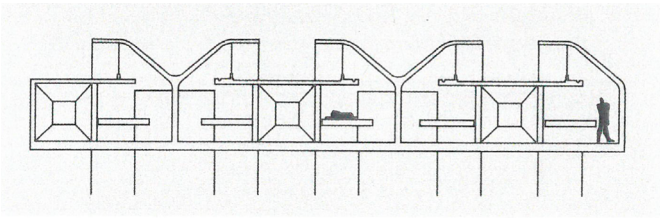


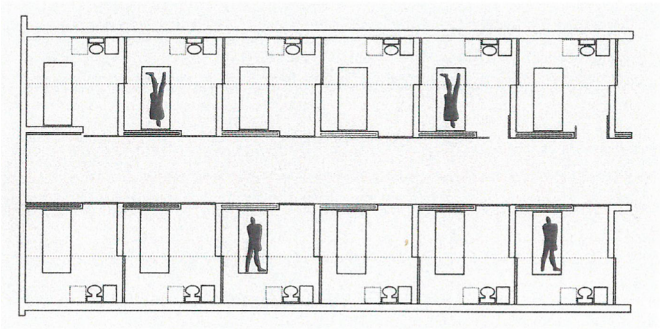
Top: A. Aalto, Upper sun terrace with patients taking the fresh air-cure, 1933

Bottom: Jean Saidman, Revolving Sanatorium, Aix-les-Bains, France, 1930



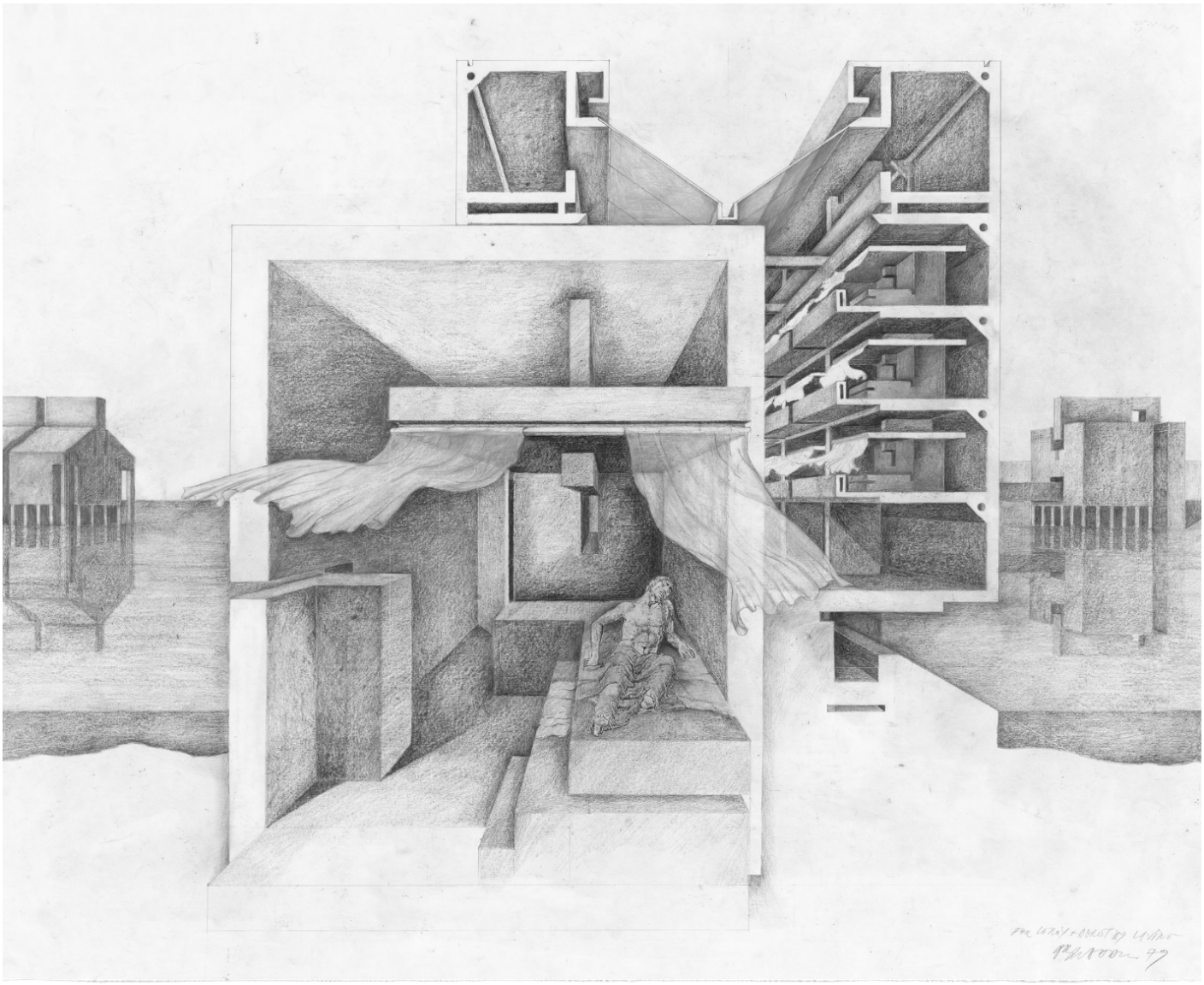




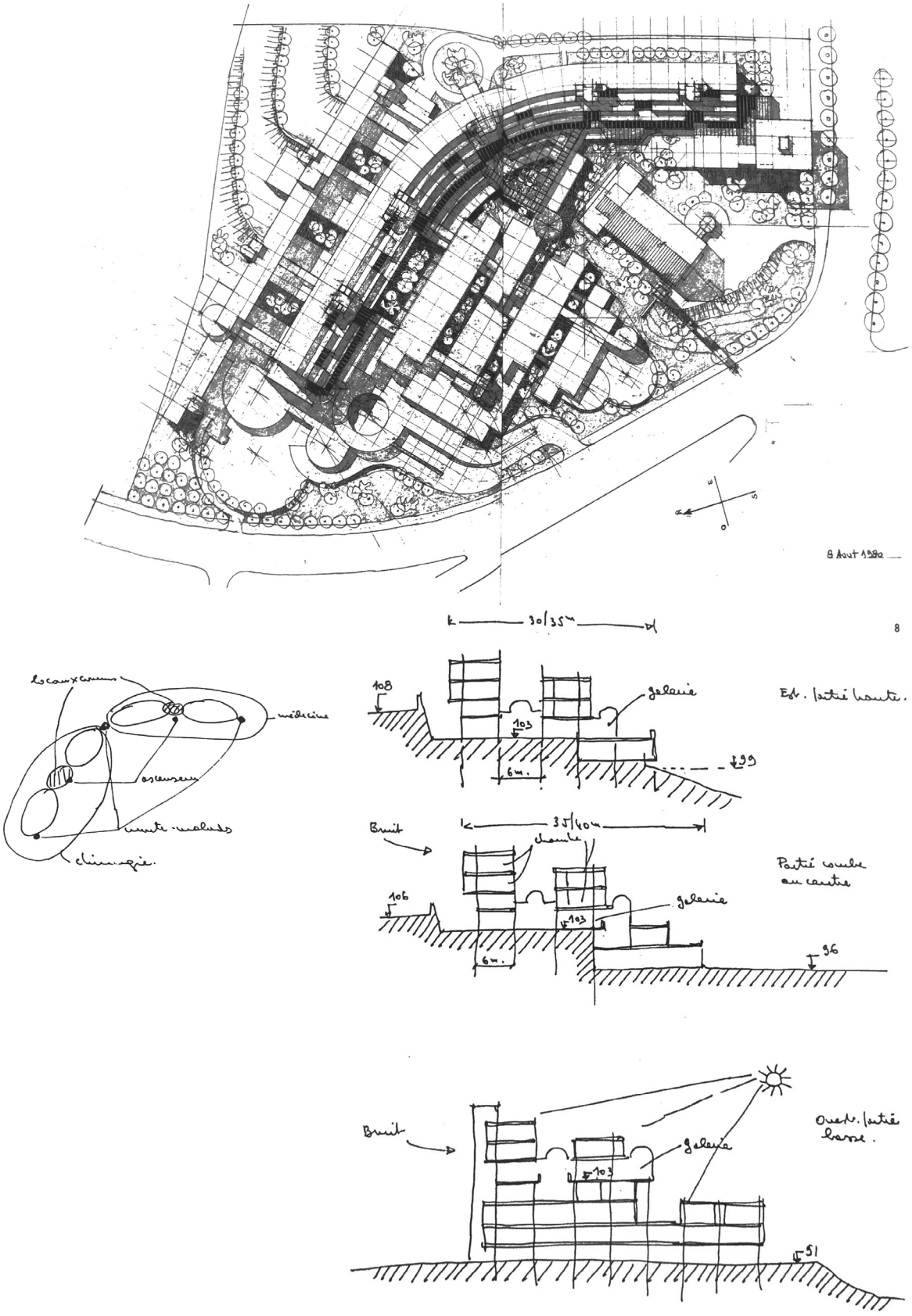


Top: Le Corbusier, Venice Hospital (unbuilt), model, 1964

Bottom, from left to right: Vittore Carpaccio, Sant'Orsola Funeral (detail), 1493;
Le Corbusier, Venice Hospital (unbuilt), Room (section and plan),1964

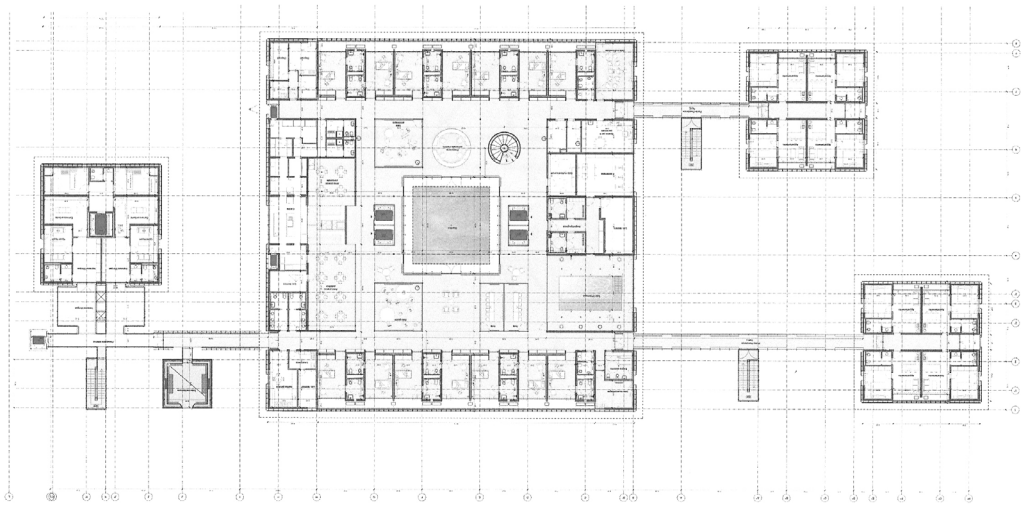


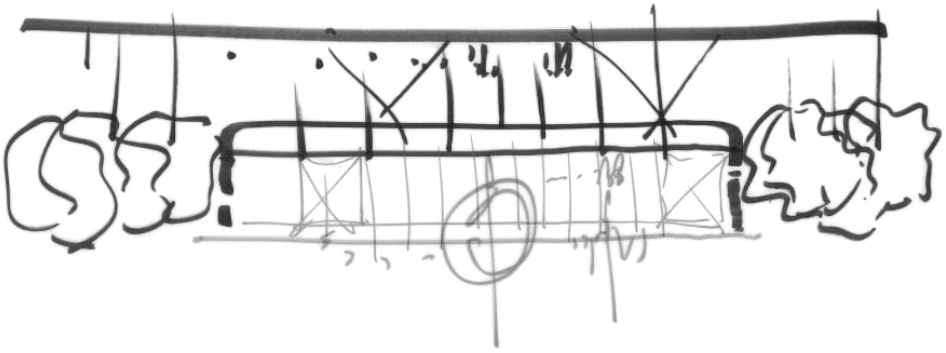
Raimund Abraham, Hospital: House of Hope, House of Birth, Houses of No Return, Sectional perspective, Venice, 1979



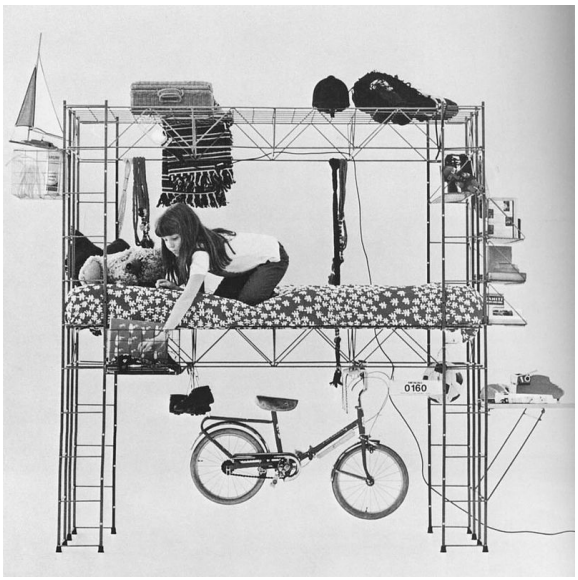
Top: Pierre Riboulet, Robert Debré Hospital, Paris, Masterplan, 8 August 1980
Bottom: Pierre Riboulet, Robert Debré Hospital, Paris, Sections, 4 June 1980

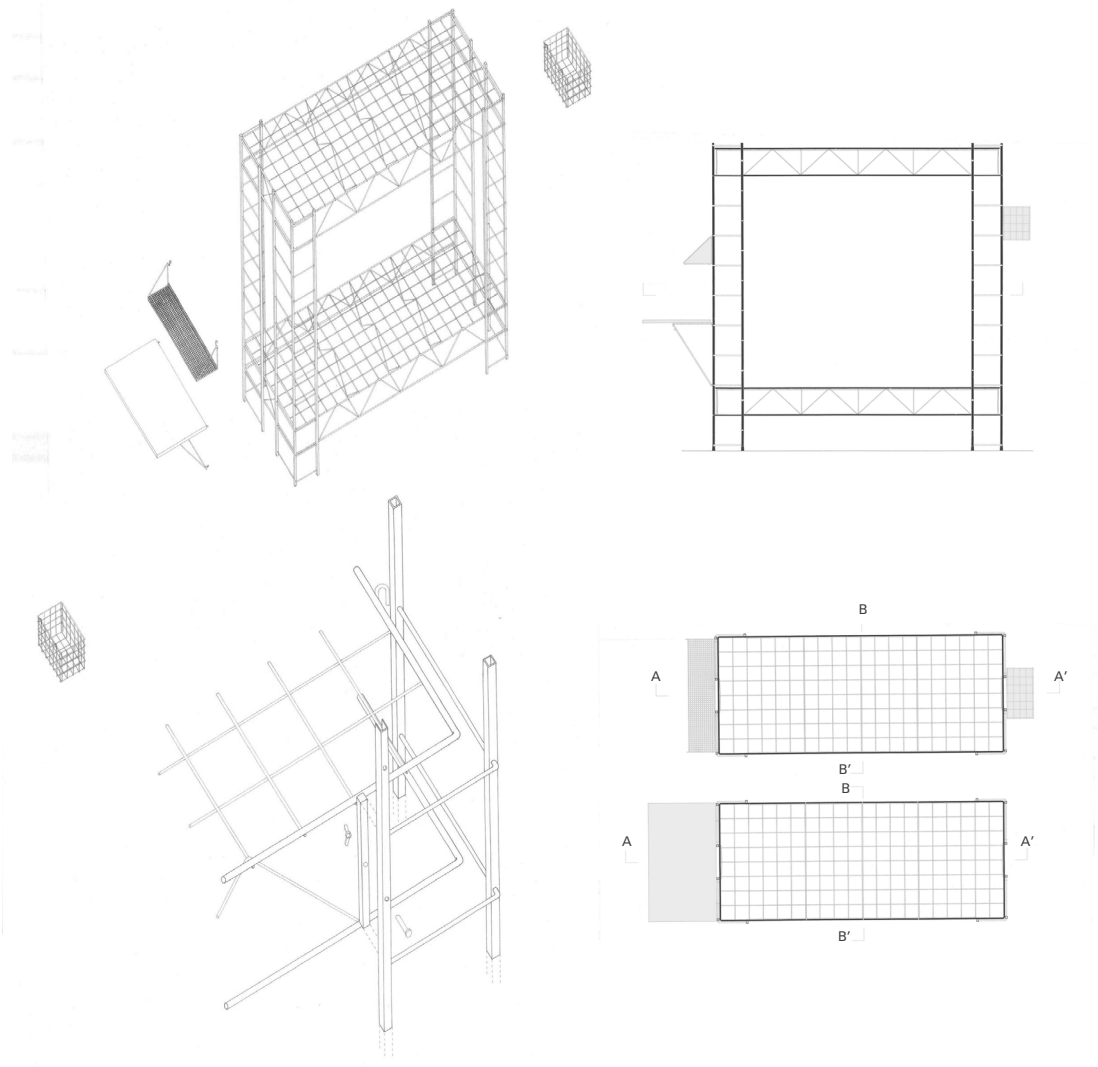
N.B. These drawings are contained in Riboulet P. *Naissance d'un hôpital* (Paris: Les Editions de l'imprimeur, 1994), pp. 64-65



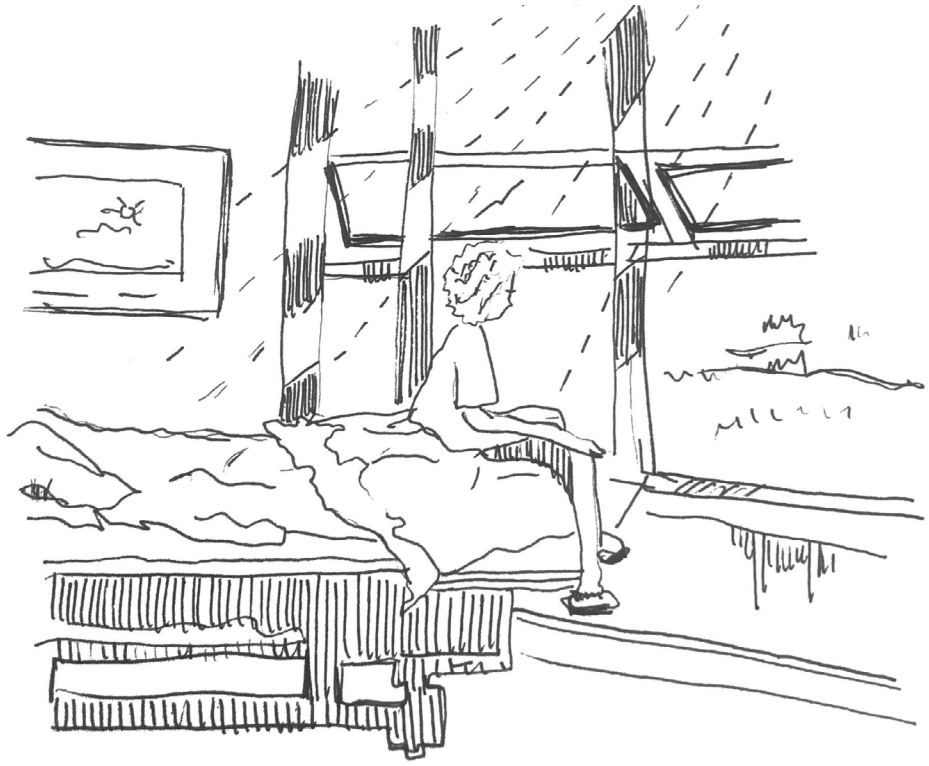


Renzo Piano, Paediatric Hospice,
Bologna, 2019





Bruno Munari, Bed structure (Abitacolo), 1971, h206cm, l194 cm, p83cm



Suspended Hand sketch by the Author

Prologue

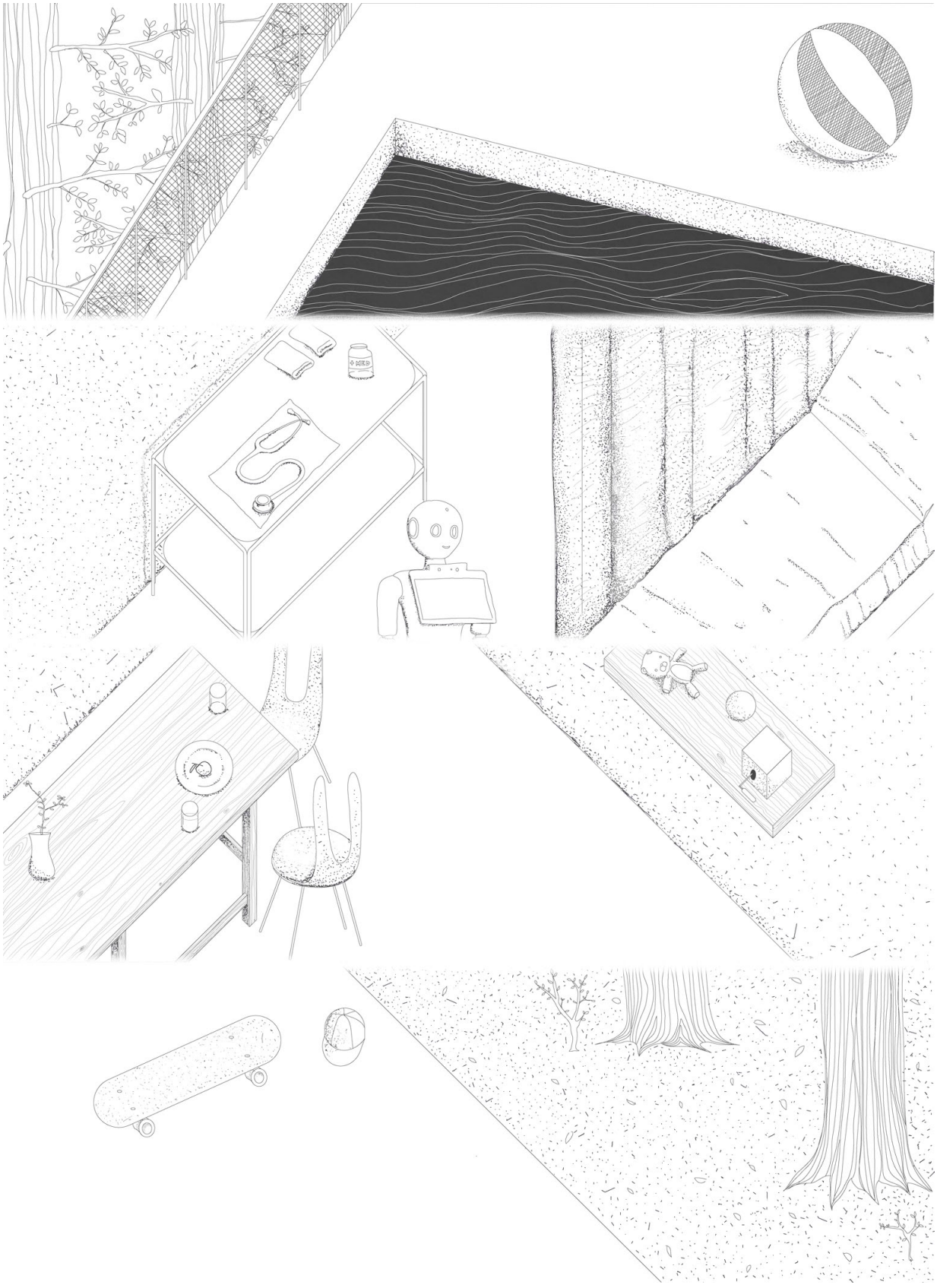
Illness is the night-side of life, a more onerous citizenship. Everyone who is born holds dual citizenship, in the kingdom of the well and in the kingdom of the sick. Although we all prefer to use only the good passport, sooner or later each of us is obliged, at least for a spell, to identify ourselves as citizens of that other place.

–Susan Sontag, *Illness as Metaphor*

Diseases desperate grown
By desperate appliance are relieved,
Or not at all.

–William Shakespeare, *Hamlet*

Medicine, in general, has always been a part of my roots and contains indelible kernels of the past.
I remember my curious eyes when my grandfather, an orthopedic surgeon, gave a diagnosis to his patients. But, even more, the feeling of being reassured everytime my dad gives me medical advices.
From an early age I have been fascinated by medicine, by the complex structure of the human body and its unique beauty.
I've always thought that designing is a bit like healing; both disciplines, in fact, answer to specific needs, such as creating the physical environment in which people live and fighting diseases, the "insatiable monsters" (S. Mukherjee, *The Emperor of All Maladies,* 2010).
Moreover, I felt on my skin the feeling of pity and compassion that is perceived from the outside towards those who are sick when my mom got cancer. At that precise moment, architecture looked like a conglomeration of subterranean rooms, icy and anonymous corridors, tunnels for examinations, infusion chairs, bare laboratories.
What I want to tell and explore now is a new story, or rather a new chapter with no list of worries. This story, however it plays out, is a story of inventiveness, perseverance, resilience and dignity. This project was for me a journey, a step-by-step discovery. And, while I was travelling and designing, Kavafis's pages came back to my mind. Hence, it was not getting to Ithaca–Gibraltar in my case– that counted but the journey to look for it.



Concept drawing

Project Description

«The modern man is born in a hospital and dies in a hospital, so he should make his home like a clinic.»

Robert Musil. *The Man Without Qualities*. London: Picador, 1997.

Over the centuries, the complexity of hospitals, mirrors of the scientific and technological development, has often forgotten its primary function, that is, care and assistance. The life of these environments has been supplanted by an aseptic compliance with norms, regulations, procedures, protocols, hyper technologies. Hence, there is no longer any trace of the old sacred enclosure, of the Greek temples, of the Roman valetudinaria, of hospices, of the home of the sick, of cathedrals and abbeys equipped to host needy people.

Starting from the 19th century, in fact, the hospital becomes spasmodically devoted to building materials, sun exposure, air quality, ventilation and, in parallel, the hospital stay quality changes. Obviously, the metamorphosis into a *machine à guerir* concerned the architectural typology and the sick, as a person, started to lose importance. «The dehumanization of hospitals depended on the rarefaction of the quality of interpersonal relationships between doctor and patient and on the architectural quality of the spaces, understood from an environmental and technological point of view»[1]. However, there are of course some exceptions. As Beatriz Colomina explains in her publication, «modernity was driven by illness»[2] and modern architecture was highly shaped by Tuberculosis (TB) and X-rays. Alvar Aalto with his modernized version of the sanatorium building type at Paimio[3] in 1927 should certainly be mentioned. Although the hospital had grown in size, become more specialized and close to the block-typology[4], this latter is an example of the recent so-called evidence-based design process.

Many avant-garde architects of the early decades of the 20th century, from Le Corbusier to Jan Duiker or Richard Neutra, presented their new architecture as a kind of medical equipment for protecting the body and, therefore, health was undeniably the preoccupation of several key figures of modern architecture.

In this regard, the history of Gibraltar has also been marked by the succession of various hospitals and epidemics (yellow fever, cholera, smallpox, Spanish flu) that have afflicted the inhabitants of the Rock over the centuries. After the dictator Franco's closure of the border in 1969, Gibraltar had to import water and medical oxygen from UK–next to other amenities (see fig. 14, Graphic Appendix).

Sam Benady, a Consultant Pediatrician at St. Bernard's Hospital, has traced in his book[5] the history of medicine and of the hospitals in Gibraltar from its foundation soon after the Spanish Reconquista (1462) by the Gibraltarian Juan Mateos, who converted his own house in order to look after the sick. Hence, over roughly four centuries, the hospital in the peninsula has moved from the ideal isolated and confined on a rocky height typology, to the first specialised structure (children's ward included), to the actual St. Bernard's Hospital.

The project proposes Gibraltar as a healthcare destination.

In the tradition of the Swiss Mountain open-air sanatoria, it has both a strategic location - local healthcare legislation, economic incentives and infrastructural development between southern Europe and youthful north Africa, isolation from the chaotic city - and natural features – positive climate (300 days of sunshine a year), sun, green slopes, sea views, fresh winds and air, quiet streets.

In the peaceful ambience of the mighty Rock and only a short walking distance from the Royal Naval Hospital, a group of sheltered housing with primary surgical facilities (A&E, OT, imaging, etc.) aspires to renovate hospitalization, making the transition from home to hospital almost imperceptible. Therefore, its secluded and natural location in the southern edge of the Rock allows the living units to provide both a physical escape from the usual impersonal medical environment and the isolation that often occurs during and after long-term hospitalization.

Furthermore, the design for the 2050 Gibraltar's hospital envisions the city-state as a place for treatment, recovery, healing and contributes to strengthen the economy by serving the population demographic expansion[6] but maintaining the same universal language, that is english. The rapid changes of the modern society necessarily lead to a redefinition and an update concept of the hospital as such. A crucial goal of the newly architectural typology is to merge two complementary spirits: domesticity and hospitality on one side and the de-hospitalization and dematerialization of the hospital[7].

Moreover, the proposal uses both quantitative data and qualitative approaches but privileges these latter. Privacy, quality of life and dignity are indeed the main design tools.
Medicine is an empirical science and, as Mukherjee writes in his book "The Emperor of All Maladies", data and counting is a fundamental part of any science. «To understand a phenomenon, a scientist must first describe it; to describe it objectively, he must first measure it[8].»To describe the future of healthcare is thus necessary to understand the forces shaping it.

The healthcare sector will much less center around institutions. It is already nowadays rapidly becoming decentralized, dematerialized, demonetized— and, ultimately, democratized. As healthcare becomes more data-driven, it is also becoming at the same time more personalizable[9].

Aging and growing populations[10], increment of chronic diseases, technological yet costly progress are only some of the developments that unceasingly shape the healthcare field and its expenditures. Europe, in particular, is running out of medical staff and by 2050 will be short of 300,000 doctors, that is approximately 20% of the real needs. Many debates about the above mentioned topic have been raised over the past years.

Among architects, Reinier de Graaf repeats several times that «the hospital of the future will have to be more than a hospital»[11].
How should then the hospital reinvent itself?

The project is an attempt to build a new story, where families and children are the main protagonists and sinks its roots into a new social and architectural melting-pot on Gibraltar's limestone rock rising out of the sea. In the meanwhile, a new terminology is coined and moves towards a medical relocation.

The design of a long-term residential pediatric center, targeting young patients and families travelling far from their homes to specialized hospitals aims to reinforce the former British colony as an attractive and pleasant place to live.

Architecturally, the complex stretches bottom-up providing an experiential journey, from medical processes and their foyers, common spaces and public healing garden (the Rock itself), to rest, independence and healing. Softening the transition to hospital implies to acknowledge the placebo power of architecture and avoid the concept of big hospitals that work as "production-line facilities"[12].

By all measures, home is the future of healthcare. Not only more people– children included– will receive care in their homes, but many medical procedures, that have historically been carried out in institutional settings, will be administered in patients' living rooms. In addition, all the medical equipment will become smaller and transportable.

Medical and domestic are, therefore, spatially interconnected thanks to three features of the newly designed environment: the digitalization, the robotization and the miniaturization of the medical equipments. The complex merges treating and healing and explores how future identified medical trends influences the architectural space. Hence, a new spatial matrix defines Gibraltar's pediatric hospital starting from the forecast phenomena. The design always mixes quality (sentimental scenes) and quantity (data, business model, technical architectural drawing, economic logic).

Different scenes with the corresponding design mechanisms compose a scenography of the families travelling to Gibraltar to heal their children. Graphically, the project is based on a dialogue between emphatic, romantic images and apathetic technicalities.

To restore the right balance altered by illness means, therefore, to show the exterior and interior interface of the building complex with the surrounding urban landscape, its biotic and abiotic flows.

«Everyone who is born holds dual citizenship, in the kingdom of the well and in the kingdom of the sick. Although we all prefer to use only the good passport, sooner or later each of us is obliged, at least for a spell, to identify ourselves as citizens of that other place»[13].

The hospital, finally, has to act as a catalyst, carrying different ambitions beyond the conventional setting through a smaller and more human scale. By doing so, families and residents of all ages and origins can enjoy the much-needed breathing space and carry on their normal and dignified life.

[1] Monsù Scolaro A., Vannetti G. *I colori dell'umanizzazione* (Firenze: Altralinea Edizioni, 2015), 85.

[2] Beatriz Colomina, *X-RAY Architecture* (Zurich: Lars Müller Publishers, 2019), p. 11.

[3] This iconic piece of architecture is a good example of approaching a building design holistically, from the territorial scale to the scale of the sink. Aalto was responsible for purchasing the furnitures of the hospital, including the tiniest of details and new ad hoc standards (e.g. chair, bed, bedside table, cupboard, wardrobe, radiator, patient room window, wash basin, lamps, etc.).

[4] Verderber, S. and Fine, D.J. *Healthcare Architecture in an Era of Radical Transformation*. (New Heaven: Yale University Press, 2000), pp. 3-16.

[5] Benady, Dr. Sam G., *Civil Hospital and Epidemics in Gibraltar* (1st ed.). (Grendon, Northampshire, United Kingdom: Gibraltar Books Ltd, 1994).

[6] One of the collective hypothesis consists of the increase in population. Gibraltar's forecasted demographic increase exhibits almost 30% of the new population pyramid composed by children under 18. Based on Gibraltar budget between 2017 and 2019, a forecast envisions indeed a growing estimated expenditure in the healthcare field.

[7] The installation "Cells" by the architect Filippo Taidelli contains some of these ideas and aims to metaphorically synthesize the effects of the healthcare evolution through a sensory experience. Located in Ca' Granda, Milan's oldest hospital, within the 15th century courtyard known as the Cortile dei Bagni (Bathing Courtyard), the installation reflects upon the growing impact of technology in diagnosis, healthcare and assistance, while also underlining a dialectical relationship between them.

[8] Mukherjee S. *The Emperor of all Maladies. A biography of cancer* (London: Fourth Estate, 2011), 19.

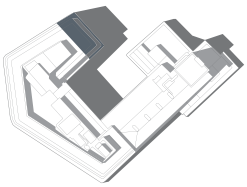
[9] Novalis wrote between 1799 and 1800 that sickness "belongs to individualizing". In Sontag S. *Illness as Metaphor* (USA: Farrar, Straus & Giroux, 1978), 31.

[10] As the World Data Bank shows, the size of the world population increased more than 400% over the 20th century. The United Nations projects that global population will reach 9.8 billion people in 2050, and population growth almost coming to an end at 11.2 billion in 2100.

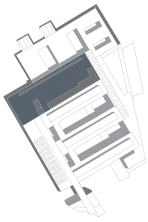
[11] The recent OMA study entitled "The Hospital of the Future" speculates about the new role of hospitals. For more details, see https://oma.eu/projects/hospital-of-the-future.

[12] Jencks C. *Can architecture affect your health?* (London: Idea Books, 2012), 38.

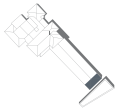
[13] Sontag S. *Illness as Metaphor* (USA: Farrar, Straus & Giroux, 1978), 3.



Hospital Vithas Fátima, VIGO



Hospital Serranía, RONDA



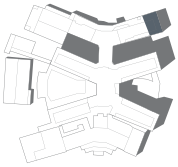
International Hospital, MARBELLA



Hospital Universitario Joan XXIII, Tarragona



Hospital Infanta Cristina, BADAJOZ



Hospital Virgen Macarena, SEVILLE



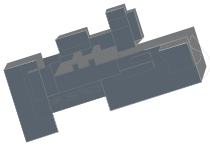
Hospital Quironsalud, MARBELLA



Hospital Universitario, Zaragoza

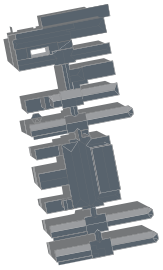


Ibn Tofail Hospital, Marrakesh



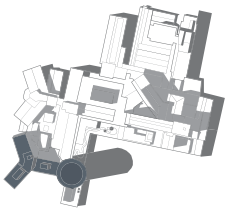
Hospital Sant Joan de Déu,
BARCELONA

active from: 1867
tot. capacity: 362 beds



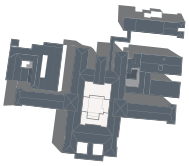
Hospital Infantil Niño Jesús,
MADRID

active from: 1881, birthplace of
paediatrics in Spain
tot. capacity: 180 beds

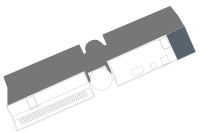


Hospital Universitatrio La Paz,
MADRID

active from: 1961
tot. capacity: 1300 beds

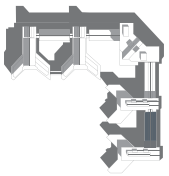


Hospital Dona Estefânia, LISBON



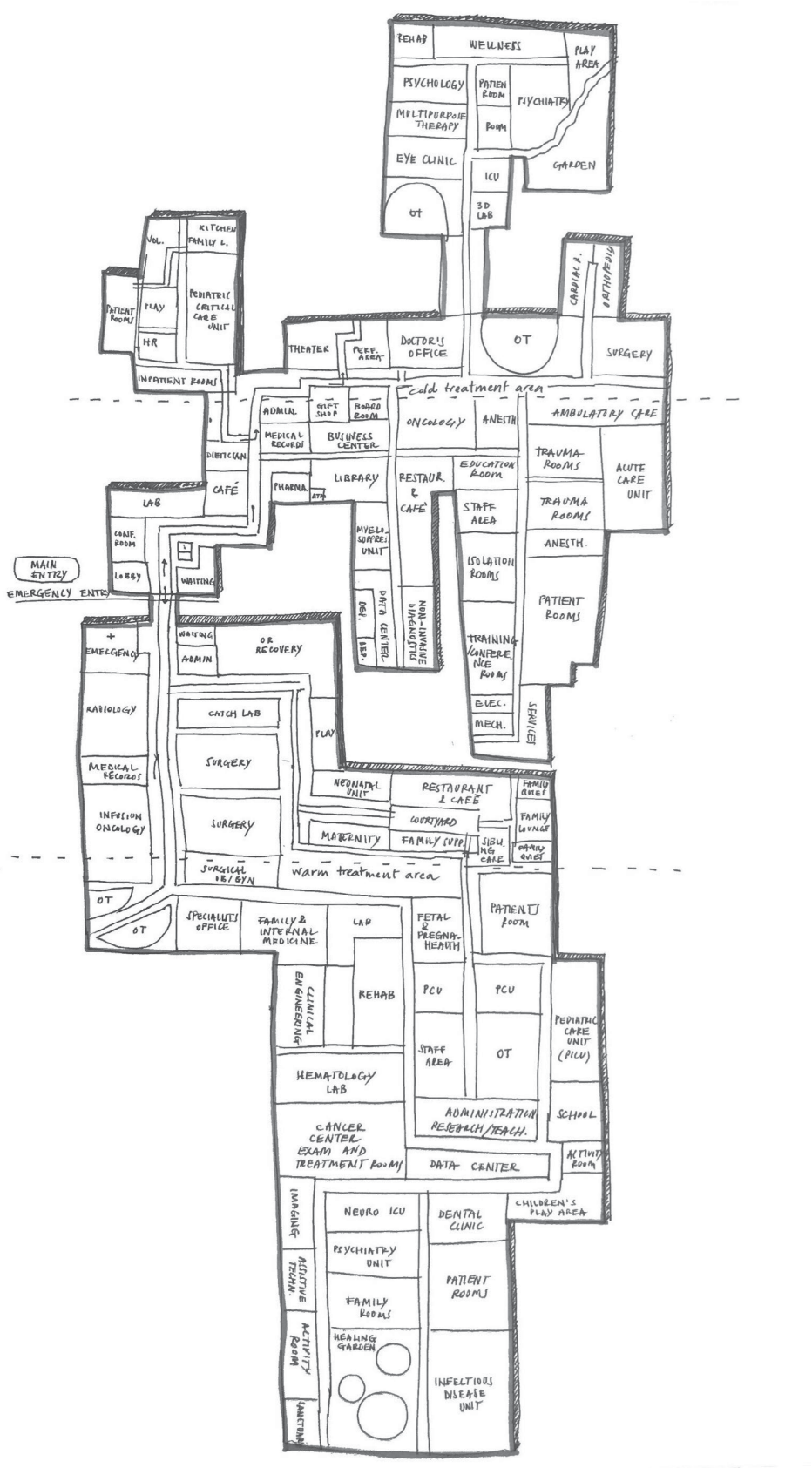
Hospital Quirónsalud,
CAMPO DE GIBRALTAR

active from: 2014
tot. capacity: 94 beds

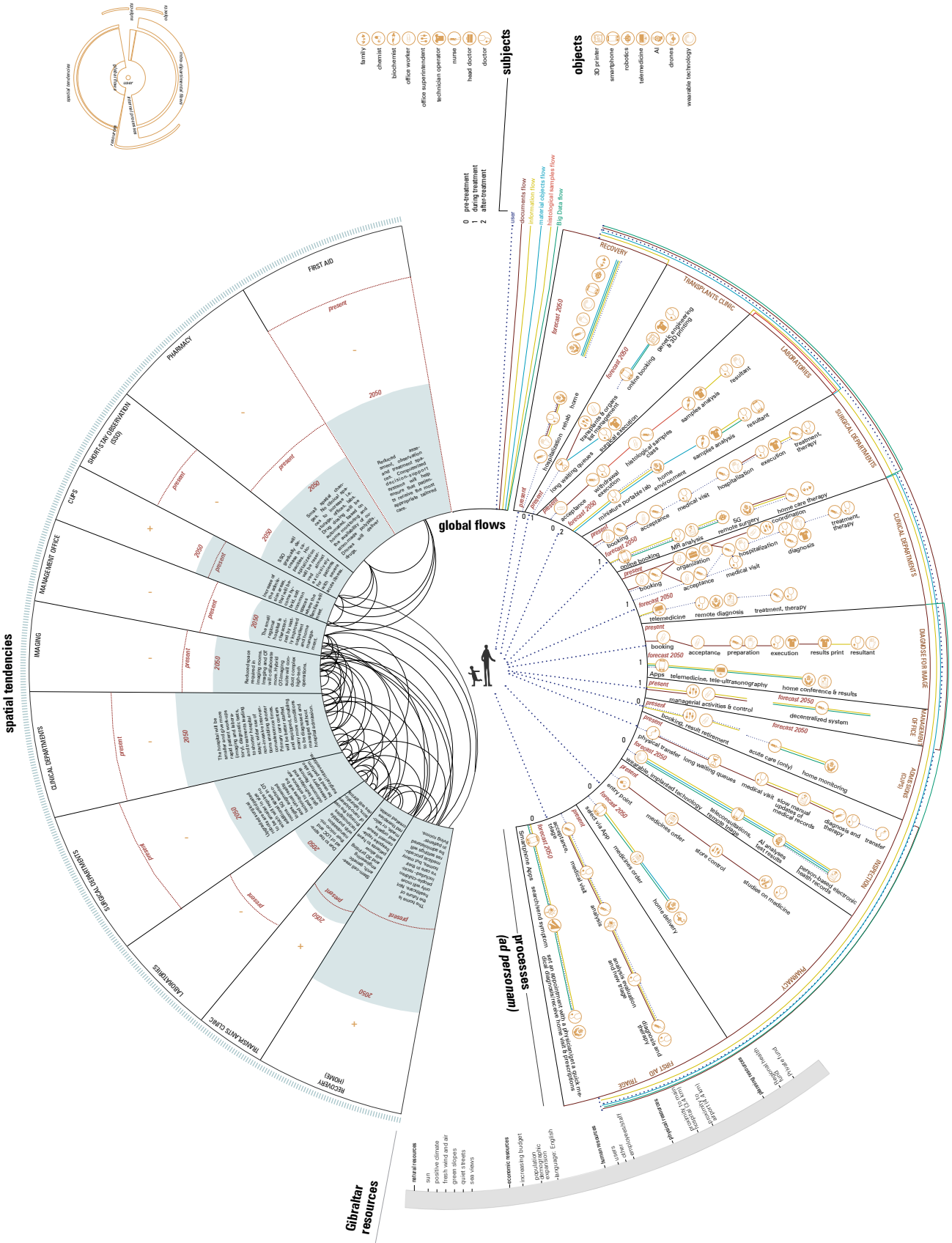


St Bernard's Hospital,
GIBRALTAR

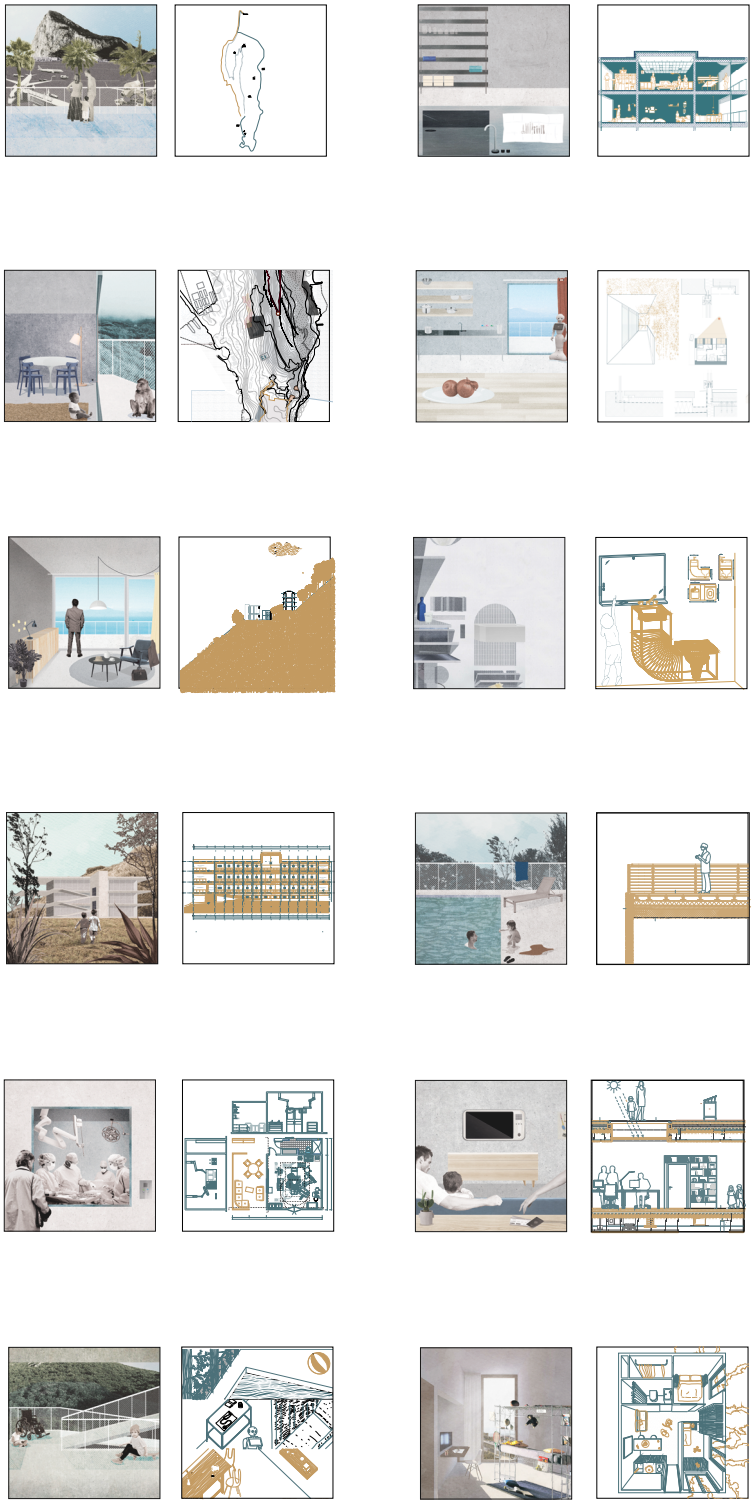
active from: 2002
tot. capacity: 210 beds



Francesca Giudetti, Europe and Africa as a unique ward, 2019



Hospitable Hospital: flows and fluxes of the project



Emphatic scenes and apathetic technicalities: twelve diptychs depicting the newly designed regional paediatric hospital.



Laser cut of core elements

Outcomes and Deliverables

The project aims at domesticizing the paediatric hospital, offering a different reading of the place and avoiding to convey compassion towards the sick children. Like other public institutions, the hospital is part of a bigger system. The design for the paediatric intensive care unit (PICU) will also help to define the moments that the moving families will live in the Gibraltarian context.

Thus the proposal of the *Hospitable Hospital* contains two element-ensamble: the paediatric care centre and family sheltered-housing. Taking into account the non-unique architectural identity of Gibraltar and its variety in terms of architectural languages, the project will not try to emulate the existing reality, but rather propose a livable alternative.

The structure of the project mirrors a logics that is part of medicine as a science, being it composed of data, scenes and actions, explicative diagrams.

The core of the project will consist of diptychs with 24 illustrative panels of 22x22 cm format.

The design of the new medicalized family house aspires to be a project that is not limited to the use of colors and children cartoons as tools but includes the redefinition of the paediatric hospital on a territorial level as well as a redesign of families' apartments.

Deliverables:

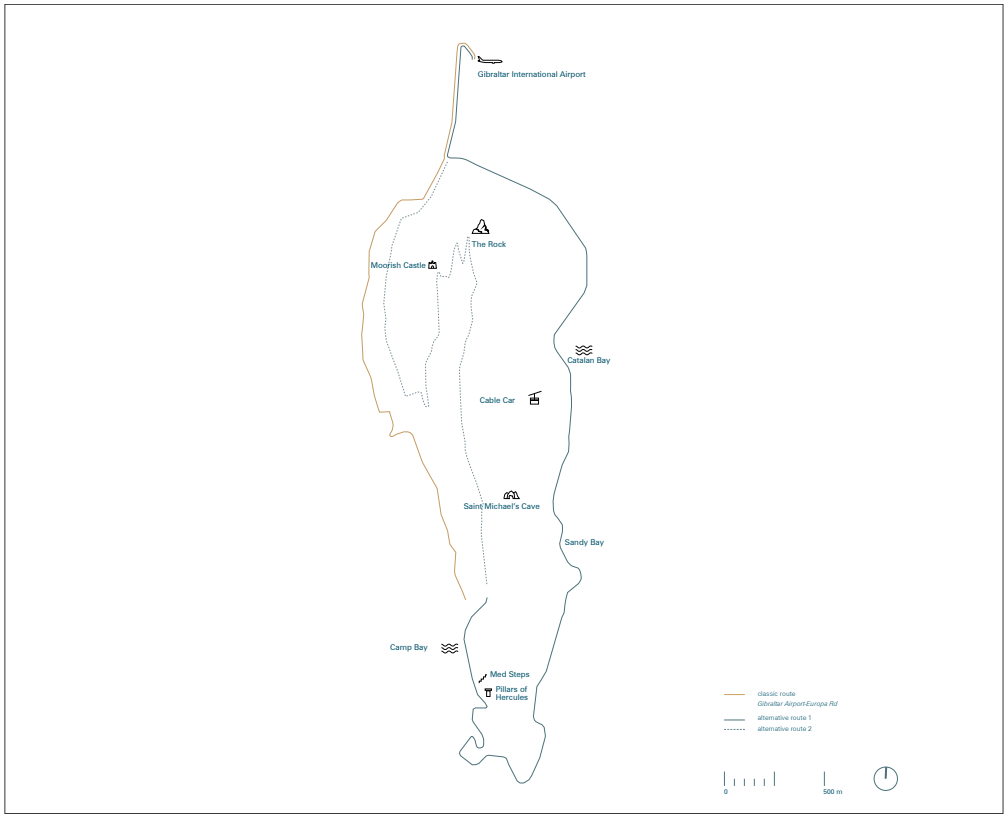
—Three illustrative plates (A2) with regional scale of pediatric hospitals, the masterplan of the complex, the business model with fluxes.

—A system of twentyfour 20x20cm panels showing the scenes and technical drawings.

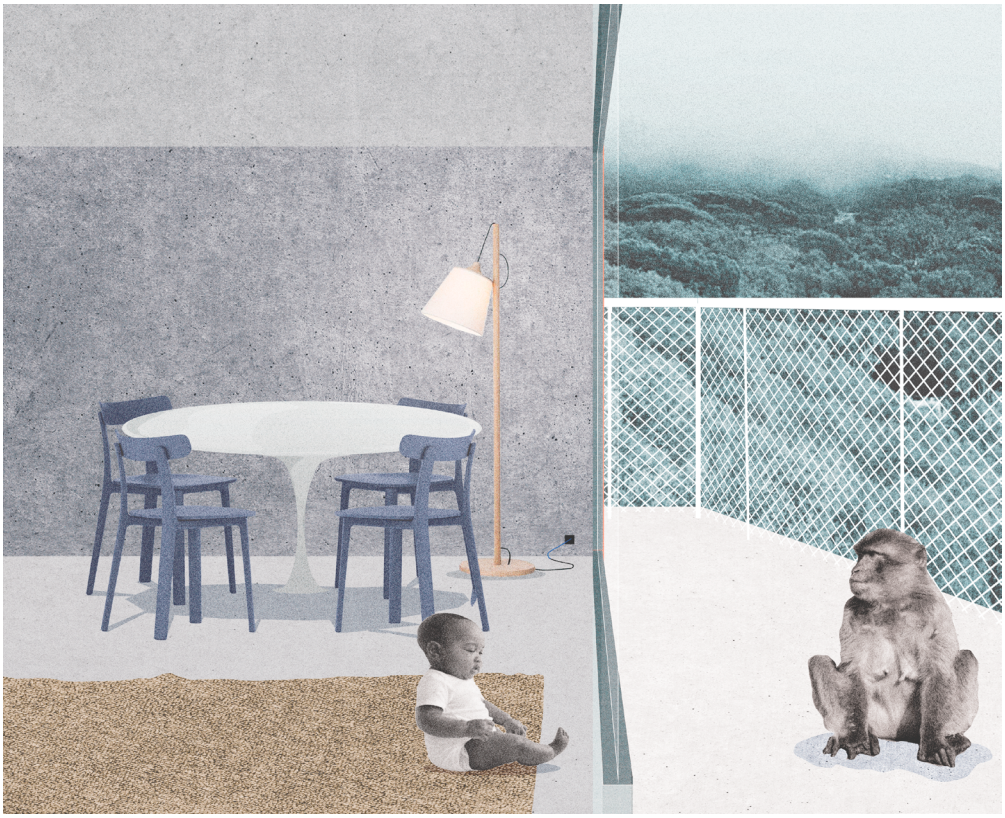
—A booklet containing analysis, drawings and studies for the paediatric centre.

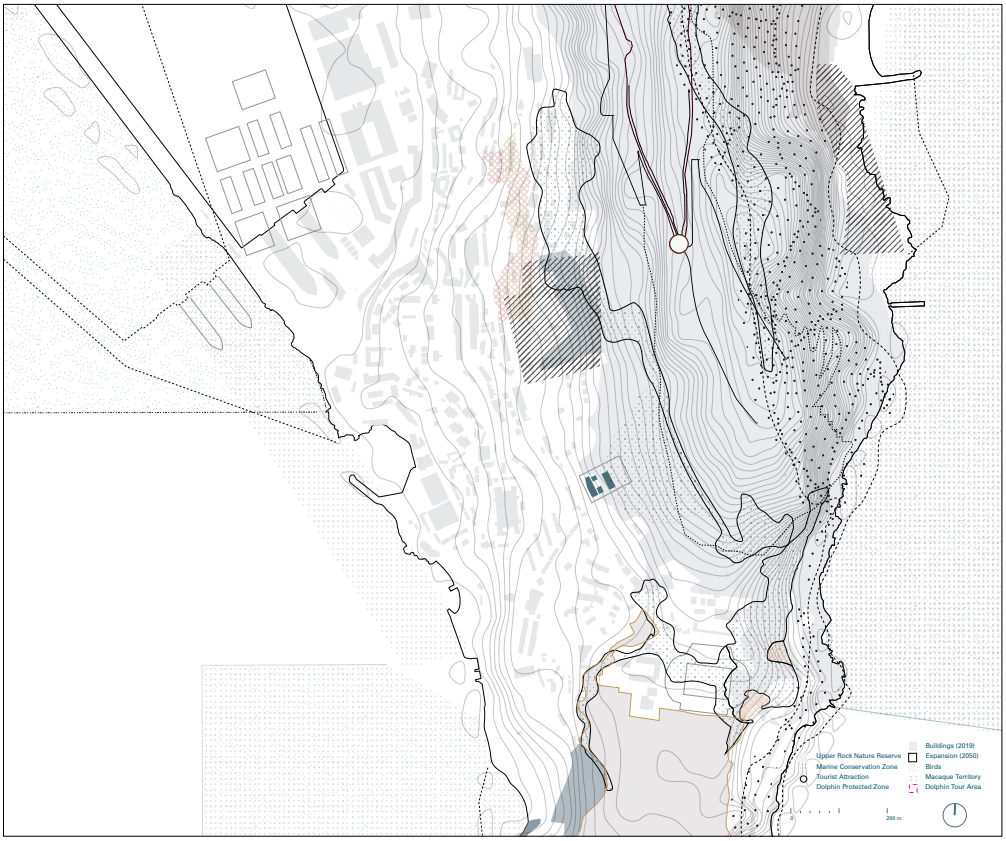
—A video explaining the project.





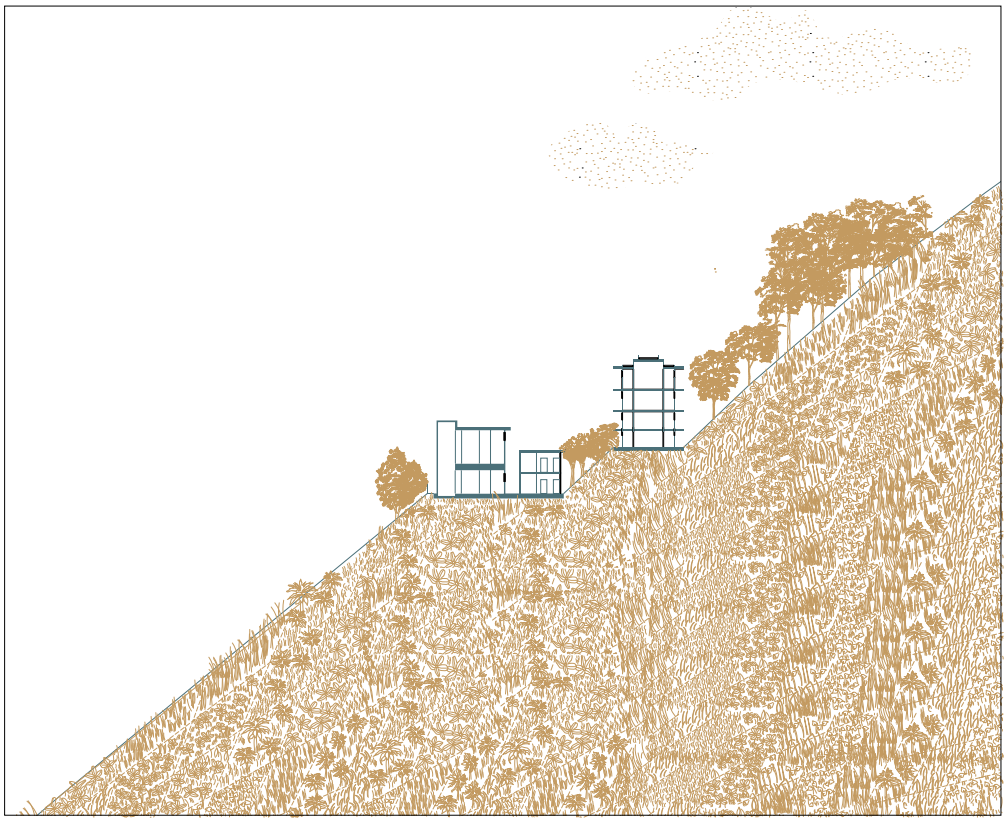
Hospitable Hospital: collages and drawings (scene 1)



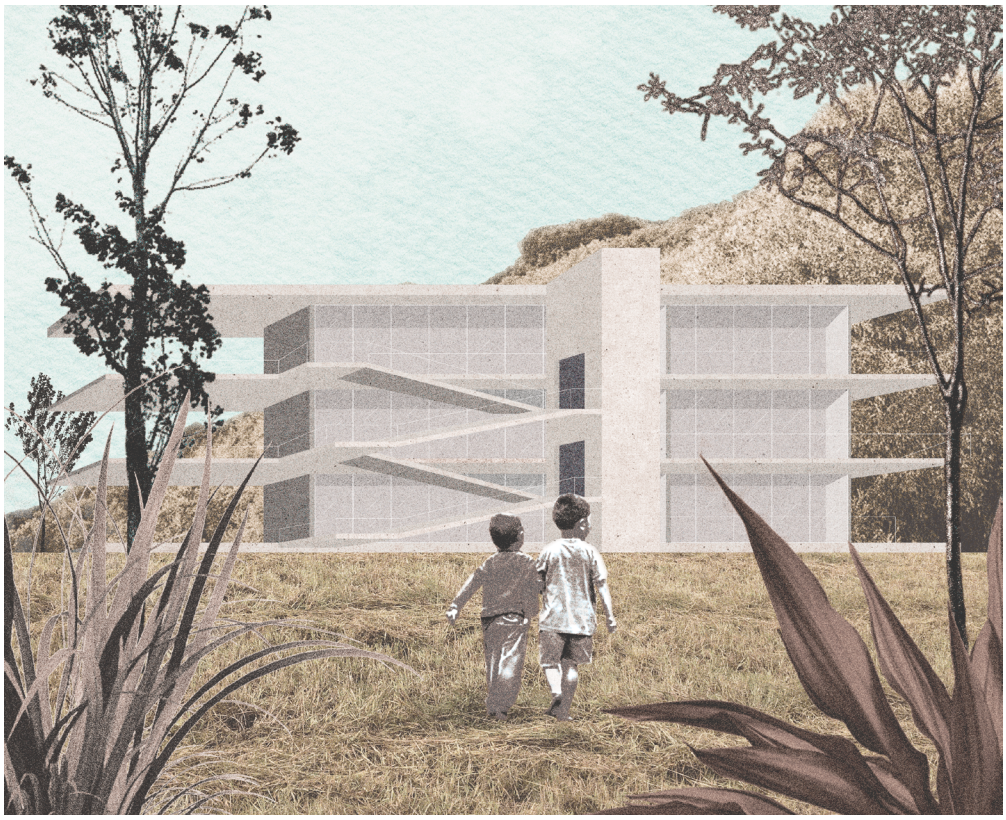


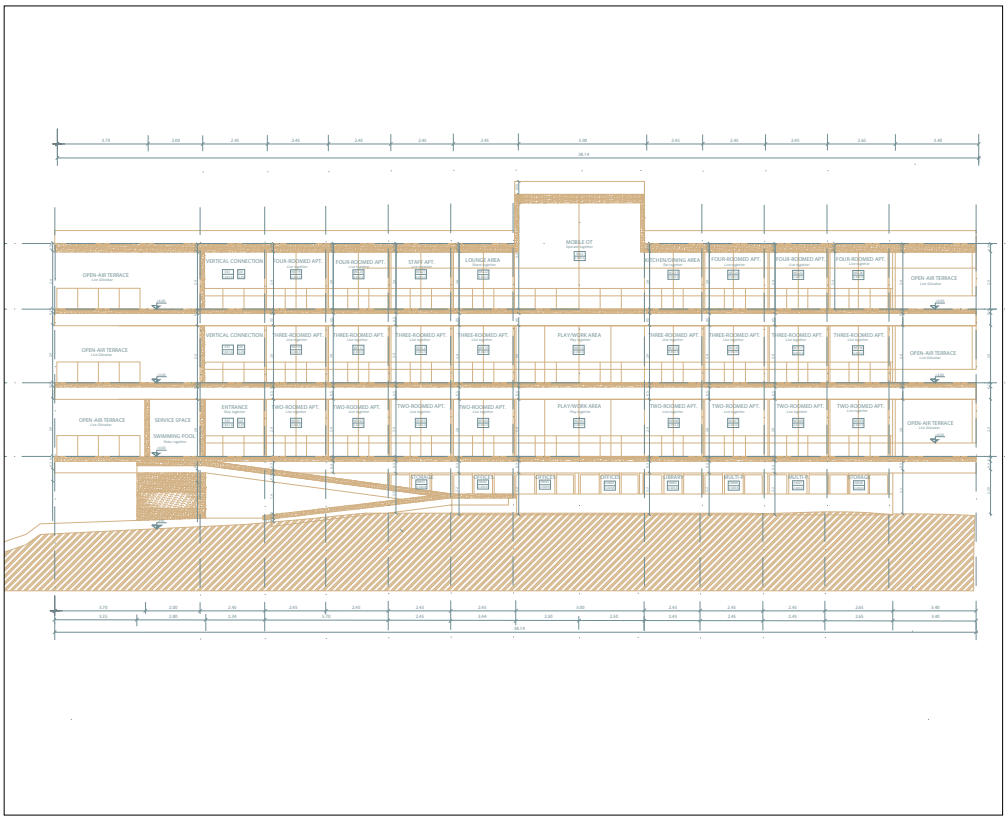
Hospitable Hospital: collages and drawings (scene 2)





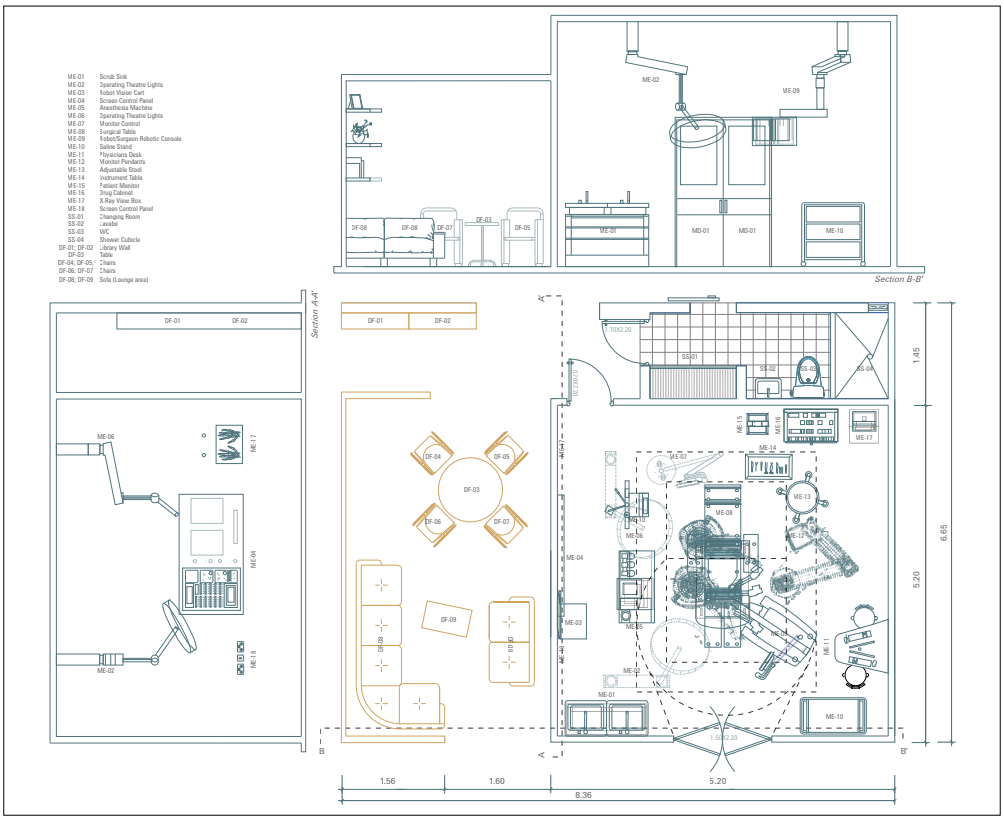
Hospitable Hospital: collages and drawings (scene 3)



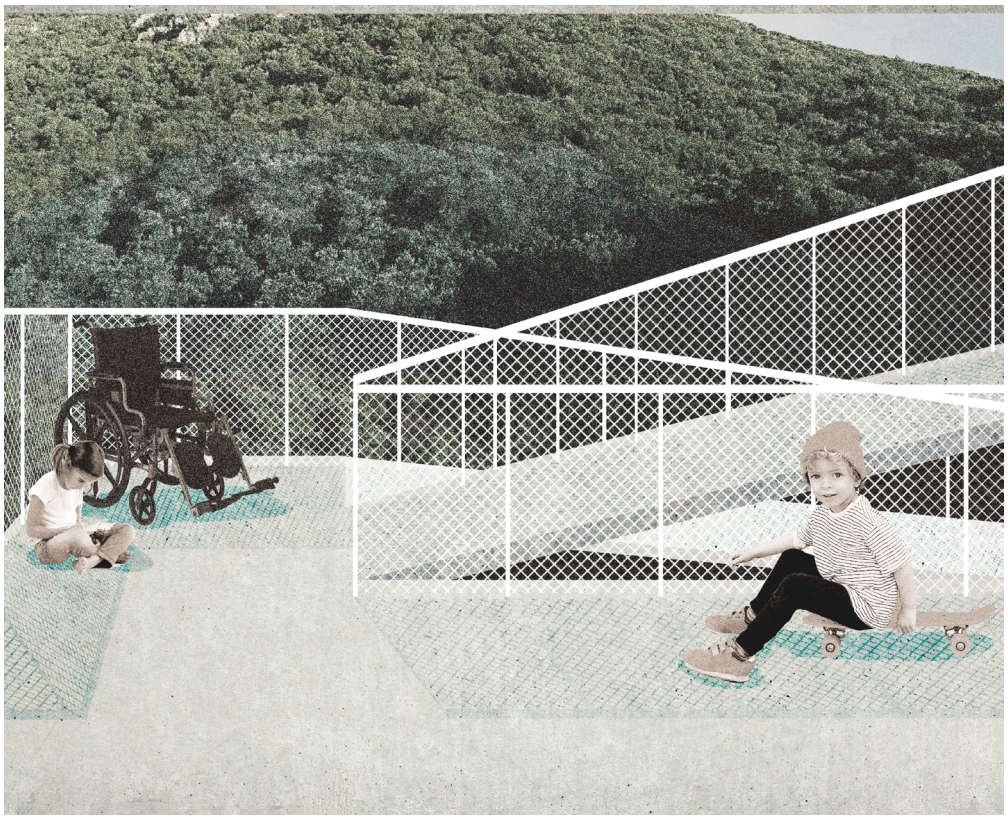


Hospitable Hospital: collages



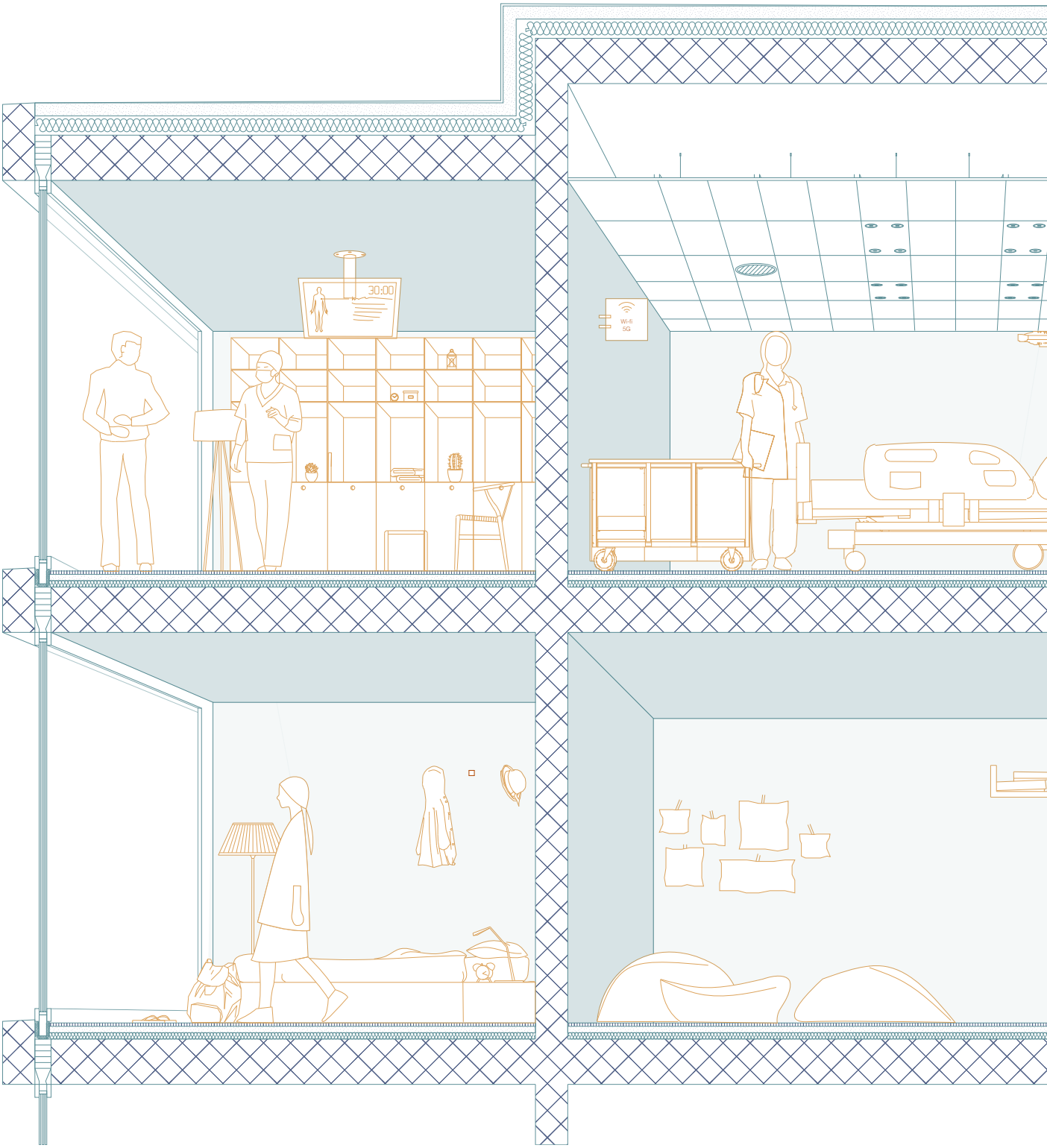


Hospitable Hospital: collages and drawings (scene 5)





Hospitable Hospital: collages (scenes 6,7)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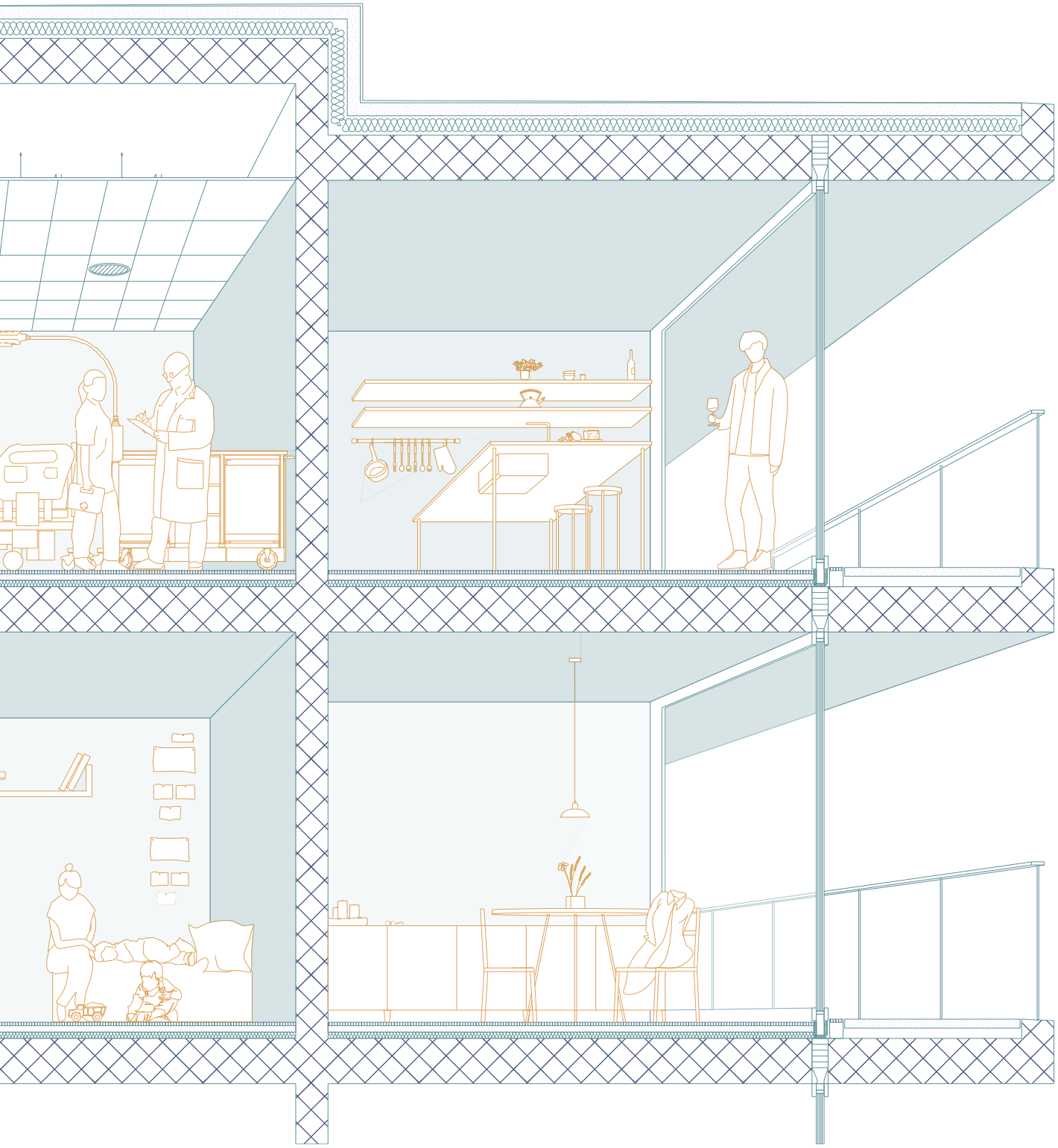
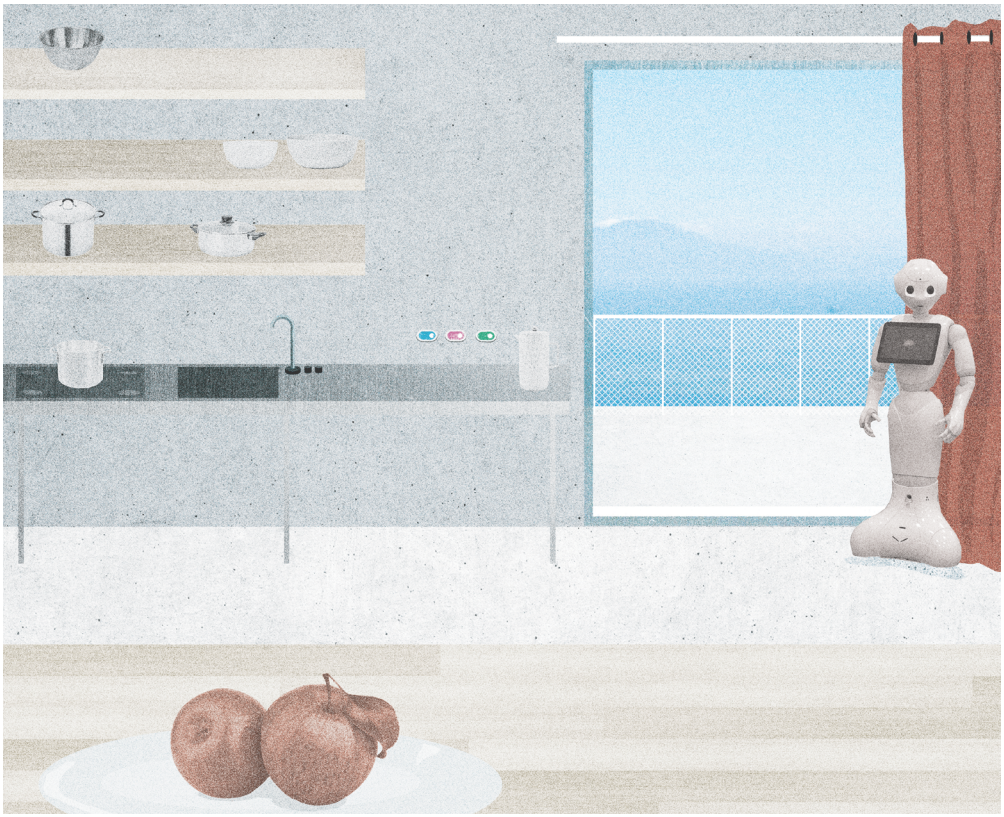
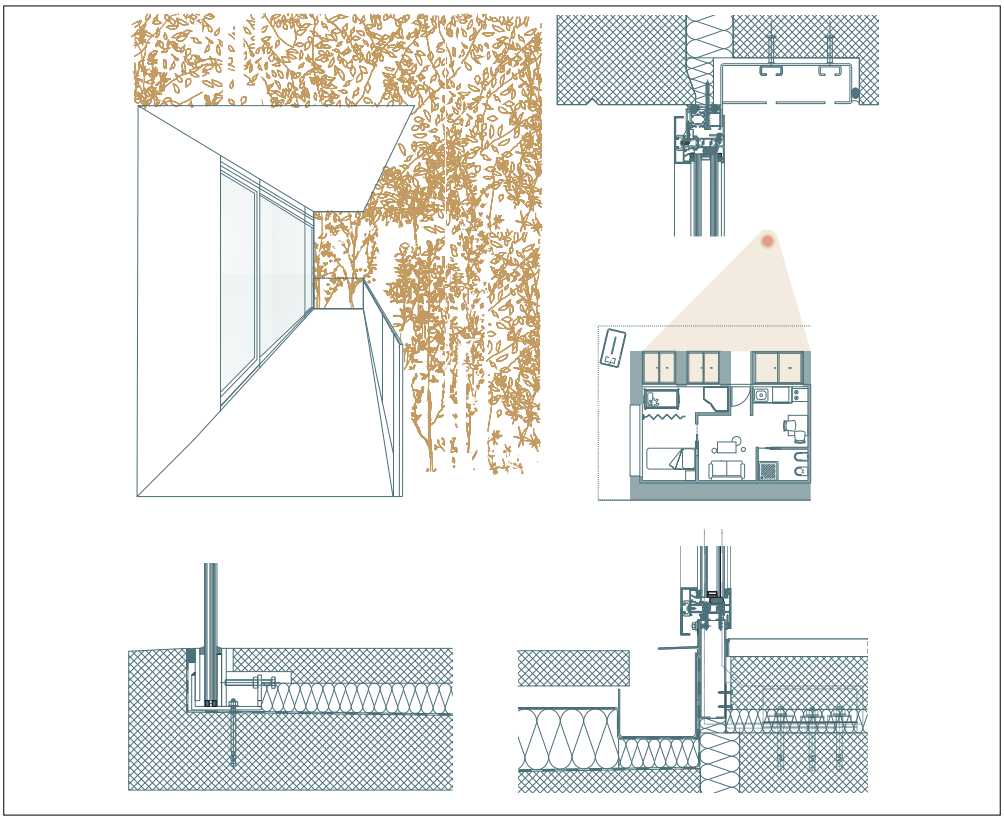
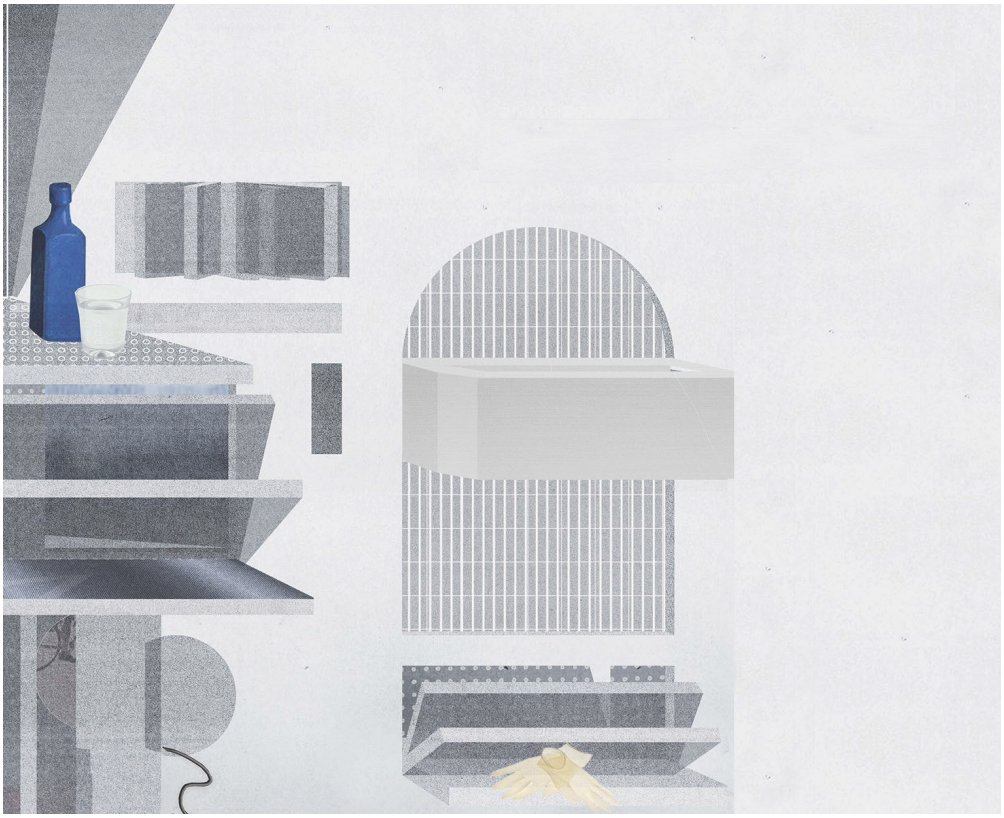


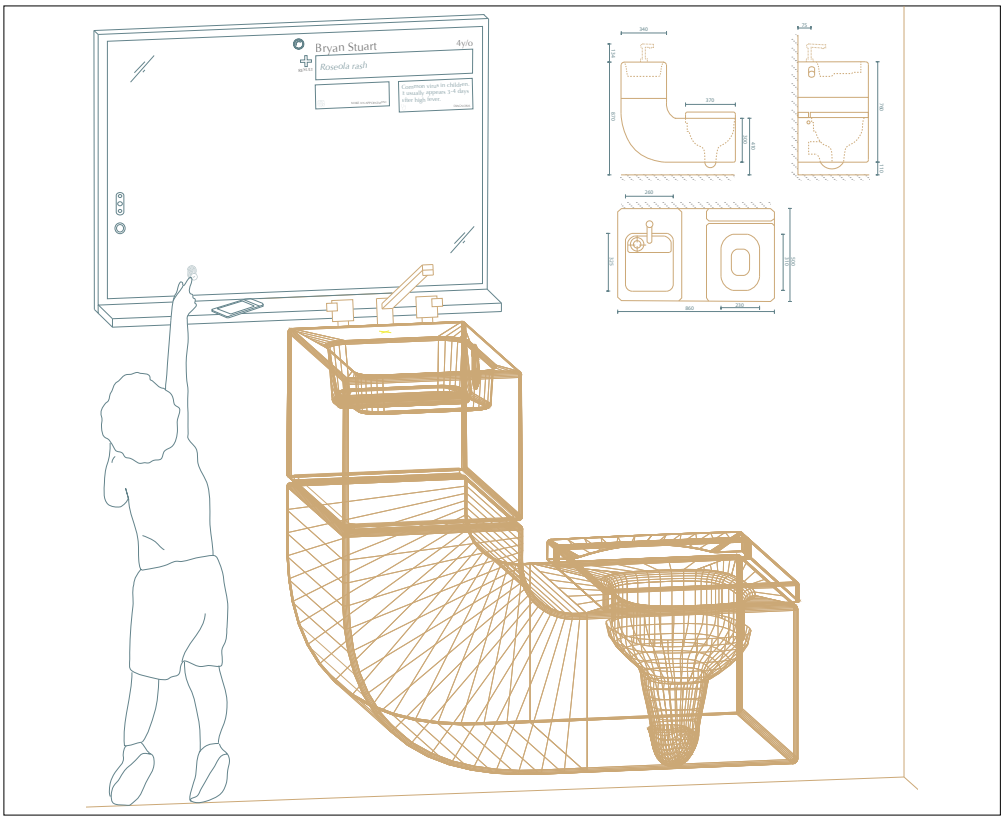
Perspectival section



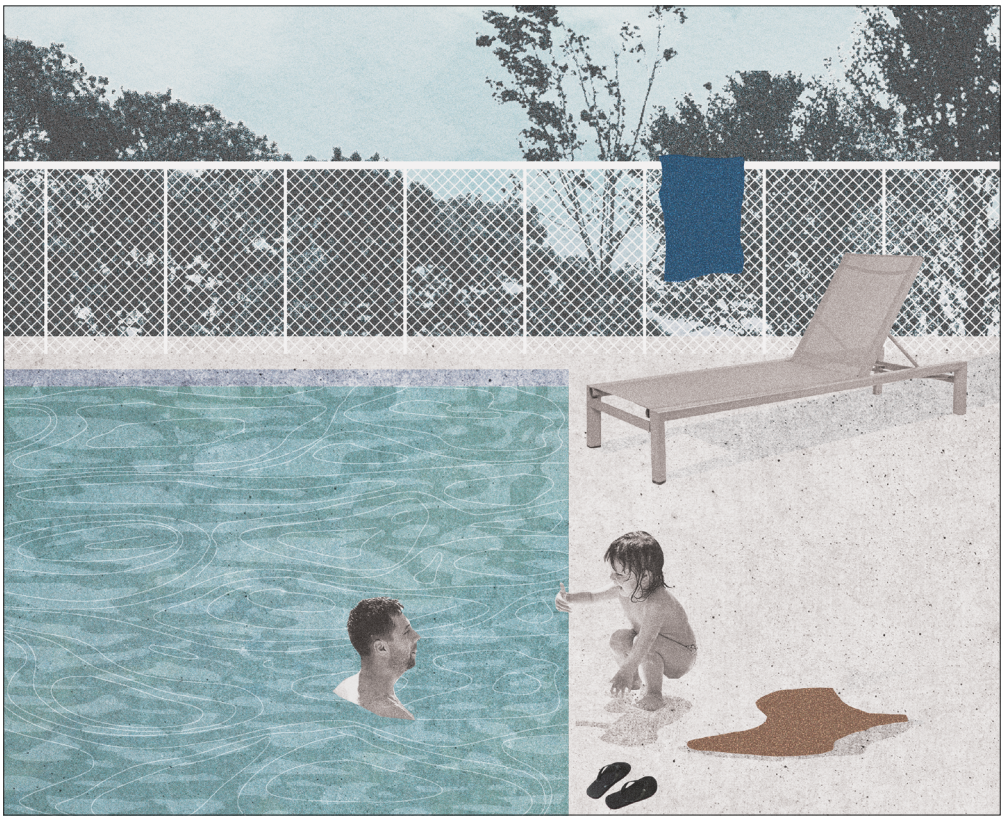


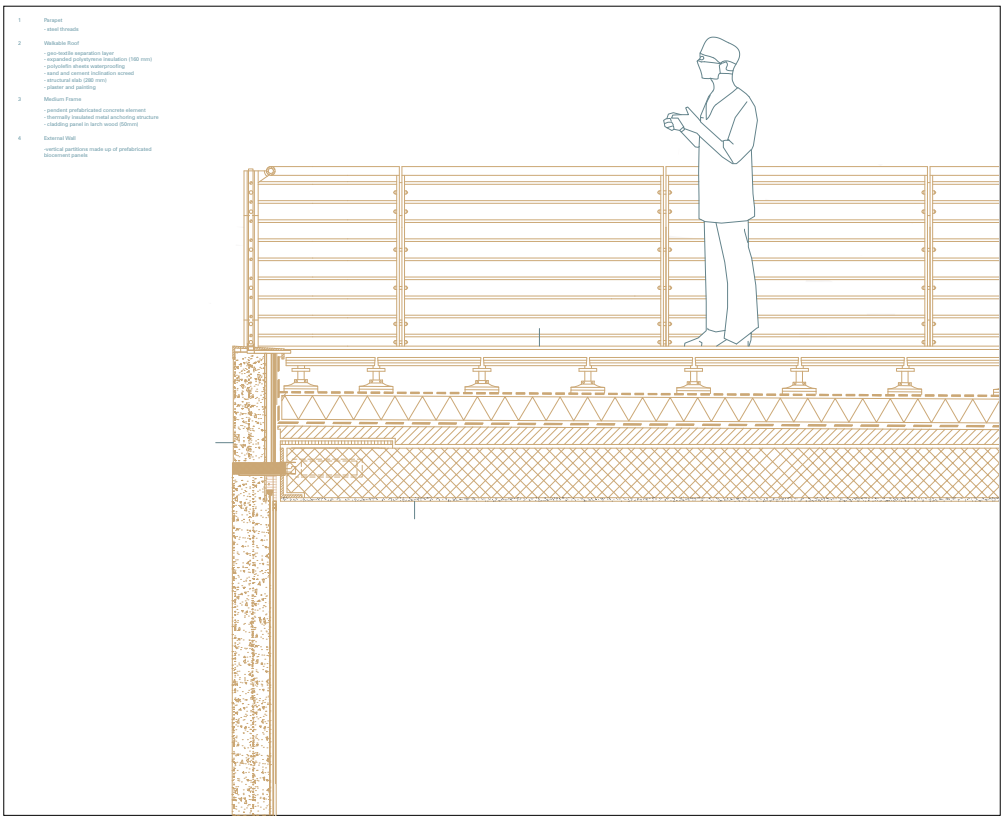
Hospitable Hospital: collages and drawings (scene 8)



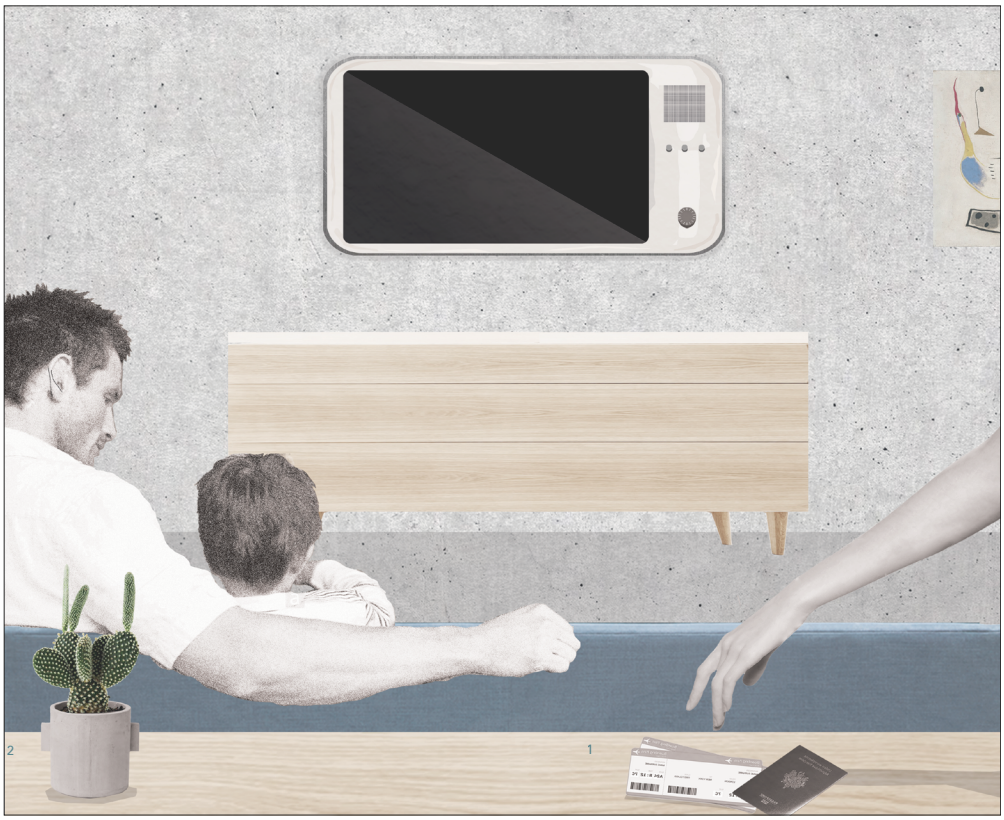


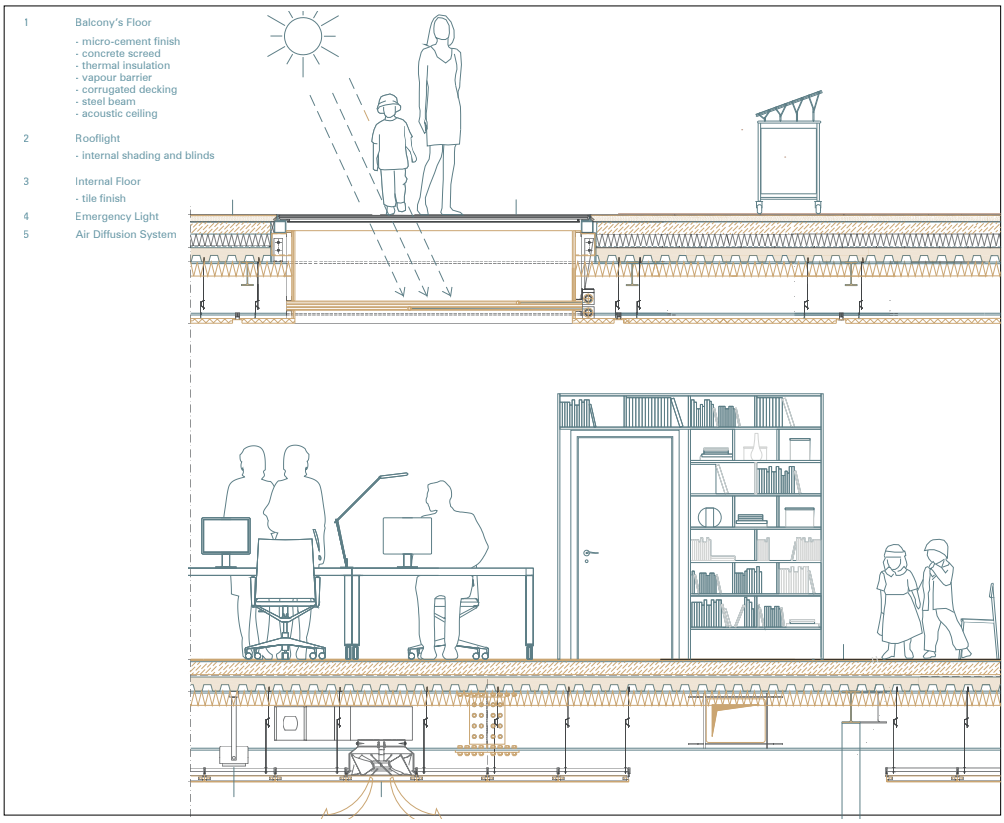
Hospitable Hospital: collages and drawings (scene 9)





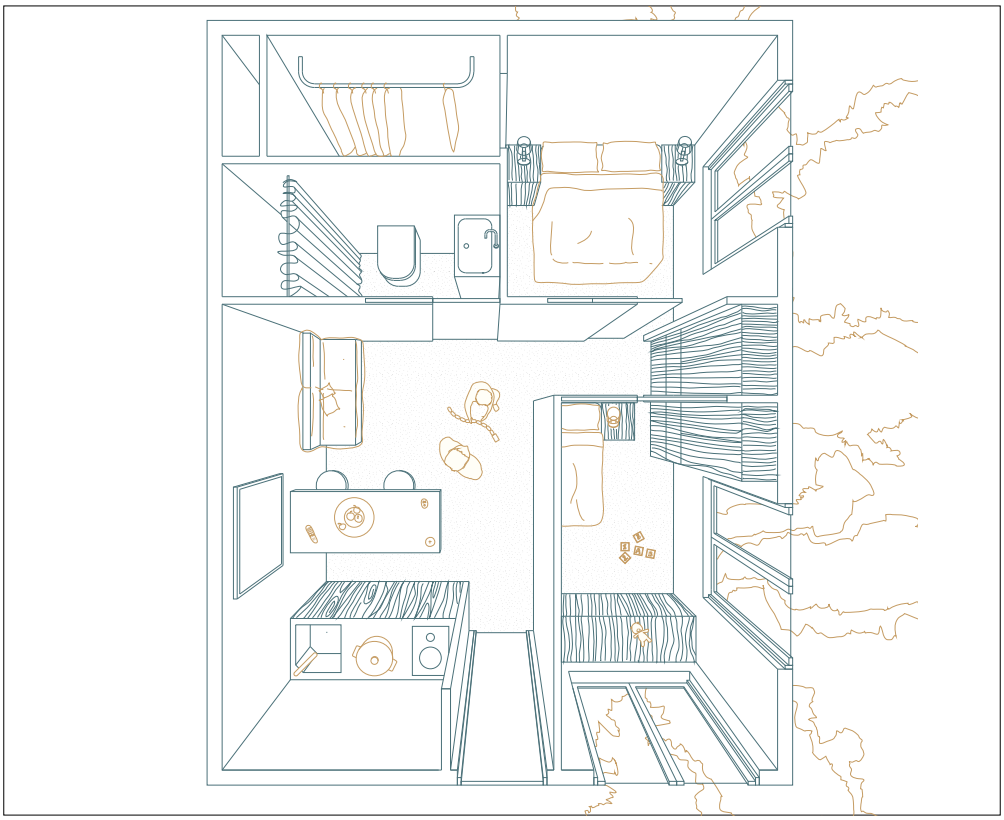
Hospitable Hospital: collages and drawings (scene 10)





Hospitable Hospital: collages and drawings (scene 11)





Hospitable Hospital: collages and drawings (scene 12)

Expert Interview

Annie Green is the Chairwoman for Gibraltar Childline.
The following is an excerpt from an interview. The interview took place in June 2019.

I've read lots of articles about alarming in terms of children's mental health on the Rock, with a third of all contact they received last year relating to children's mental health issues. Is it true?
Unfortunately, yes. Every year we publish statistics about it. We show alarming figures in terms of children's health. 33% of people who contacted the Childline last year, contacted us about mental health diseases. It's a real explosion and we've seen quite a change in the last 4 years. 52% of those contacted us about self-home and 15% of those contacted us about suicide thoughts. It's an extremely alarming problem. There has been an excalation in mental and health's issues.

What is your contribution in concrete terms?
We have three call-services in Gibraltar. We have the Helpline Service, which is open every evening from 5 to 9 pm. We have Freephone 8008 and real time services. We offer online services, as well. Finally, we offer a preventative education service.

How important is to raise awareness among the young?
It's very important. We're currently participating to a competition with classes of 6-9 years old children. We're asking children to send us pictures, photos, stories, poems, drawings, to tell us how mental health affects them.

What would you like to hear from them?
We'd really want to hear from them how the town, Gibraltar, affects their lives. What are their feelings?

Are the schools supporting your work?
Many schools work with us. The Department of Education is also hardly working in order to raise awareness in children and their families, too.

What topics have you discussed with teenagers?
The teenagers chose the topics by themselves: they were exam-stress based and about the use of alcohol and drugs.

What else is Chidline up to now?

Different workshops on different issues, for sure, and parenting courses. But we are also open to any suggestion from the outside.

What is your attitude towards the most difficult cases?
Our purpose is not to change anyone's attitutes but to raise awareness of potential benefits and barriers that may accompany them. There are no right or wrong personal attitudes– the most important part is to be open and honest about them.

What is the Government doing to limit the self-home set of problems?
We are working with them on this. We are doing training thanks to volunteers, to be very practical, to improve skills.

What are the more common issues?
Relationships, gender issues, body image and exam-stress. As you may have noticed, in Gibraltar there are a lot of overweight children and teenagers. We want to encourage people to be more open and not to stay away from this issues. Having a simple, 5 minutes conversation could change their approach and their feelings, too.

What is the fundamental ability that a volunteer has to have?
He/She has to sympathize with children, being interested in what they have to say, understanding their stories and problems they are facing.

Expert Interview

Neil Costa MP is Gibraltar Health Minister.
The following is an excerpt from an e-mail interview (Q&A). The interview took place in June 2019.

I've seen the new project for the primary care next to Saint Bernards Hospital.
Yes. We've just launched the project. The WRSM Architects renders show how it will look like. We thought that investing in the primary care and in the children health care would be an important opportunity for Gibraltar community.

What is currently the aim of the GHA (Gibraltar Health Authority)?
The aim of the GHA is to have as many services as possible to repatriate services from primary, secondary and tertiary care.

What will be the role of the new paediatric hub?
To have the new paediatric hub next to the hospital, will provide seamless sinergies to the services that they provide. The new paediatric hub is a concrete response to the increase of children' illnesses.

What will the paediatric hub include in terms of programmes?
Different and various specialisms that combine primary and secondary oupatience services.

Do you think does St. Bernards Hospital fit the Gibraltarians' needs from an architectural point of view?
Partially yes. We're trying to adapt some spaces into something else, but I must admit that they are often not designed for our needs. A lot of space was wated and not designed accordingly to clinical services. Additionally with this, we are moving so that we can have more freedom. Architecturally, everything will be on doorsteps of everything.

Is this a brand new building or is this a retrofitting version?
We want it to be really something new, designed around what we need to have a better primary care. We would like to expand our services and many years ago we had very few spaces to do this.

Will the new area benefit of the old and existing one?
The new building will integrate better the clinique. There will be less corridors and wasted space.

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Afterword: Reflection of Project in Relation to Discourse

Historically, the hospitals– as L. B. Alberti treats them– were asylums for sick, travellers, foreigners, abandoned and orphaned children. Usually the hospitals were characterized by a modest and severe architecture: the monasteries were, in fact, the model to follow. Simple courtyards, not ornamental but purist facades, porticos and cloister with nature were important constituents of the first pediatric hospitals, such as the Ospedale degli Innocenti (Hospital of the Innocents) designed by Brunelleschi in 1419 and then the Hôpital des Enfants Malades, which opened in 1802 in Paris and hosted children up to the age of 15 years. The Great Ormond Street Hospital in London, opened fifty years later (1852). Gibraltar Colonial (1877) and Military hospitals (1903) share the same architectural qualities. The 17th century saw a radical shift with the redefinition of institutions intended for the care of children with illnesses, separated from adults, and the following dissemination of pediatric care centers throughout Europe.

Care has always taken place in settings such as hospitals and homes.
However, the architectural design of the hospital is often highly influenced by technicalities (health care facilities, necessary equipments and systems, etc.) and normatives. Nevertheless, the paediatric hospitals are shown many times as colorful and child-friendly architectures. The purpose of the study is to explore the possibilities of a different architectural design, starting from the current attention devoted to children and health in Gibraltar in the last five years. The thesis proposes a new domesticized paediatric hospital, a destination for kids and their families on the southern edge of the rock, overlooking the Bay. At the same time, the project has to take into account the requirements and the needs that lie behind the family long-term relocating and has its roots on the 2050 plan for Gibraltar.
Thus, the pediatric hospital design will offer homely comfort while merging the materiality of the rock, its footpaths along the Upper Rock Nature Reserve, dominated by the abundance of flora and fauna.

The result is an hospital conceived as a network of medicalized family houses that actively interact with the nature of the peninsula. That way, domesticity does not end up an oversimplification of the term; the paediatric hospital is not simply a matter of colors preferences, cartoons or themes, but rather a microcosm laced with customized design principles.

The analysis is, in the first instance, guided by the existing condition of the Rainbow Children's Ward (6 beds) on level four of St. Bernard's Hospital in Gibraltar. The genericness of this place is the starting point to address service users' needs and translate them into a proper design together with the facilities required by the institution as such.

The aim is to domesticize the hospital, offering a different reading of the place and avoiding to convey the innocence of the project. Hence, one of the key questions is how the definition of "domestic" can be applied to a medical environment and pointing the meaning of the term in the context of architecture for sick children, as opposed to designs that have an institutional origin, in a critical independent fashion through evidence and research.

Next to data and statistics at a regional scale (Spain), the project development will be divided into three parts: the analysis with data, statistics and forecasts (2050), the choreographies of the family journey through images, diagrams and technical drawings that can speak more clearly about design choices.
The main determinants of the proposal are its access to nature and water, its soothing spaces and views to provide a mental escape, its personalized apartments and rooms, its small size (micro-hospital) and its being local to the community. The architectural complex becomes a place for participatory and public activities. Moreover, the geometry of the living units provides patients with clear views while minimising travel distances for robots and caregivers. Natural ventilation can be used to manage the temperature, reducing energy costs.

From a graphical point of view, the contribution does not show its complex features, but rather its primary components through a selection of scenes and architectural drawings.

Generally, the hospital has been described many times as a living organism, always adapting and changing, "like the city itself"–as the architect Riboulet argues in his *Naissance d'un hôpital.*

Finally, the contribution does not aim to reach grandiose dimensions, but tries to demonstrate that the hospital of the future may well be the home itself. Hence, there is no need for bulky physical infrastructure but a small, sparse place thanks to biometric sensors, Big Data algorithms, telemedicine, robot carers.