



Jan Duiker and Bernard Bijvoet, Sanatorium Zonnestraat (the Dressehuys Pavillion after restoration by Hubert-Jan Henket and Wessel de Jonge), Hilversum, The Netherlands, 1925-1931. © Hans Peter Föllmi, 2015.

Health at the core of Modern Movement Architecture

in memory of Vittorio Gregotti (1927-2020)

I write this editorial, emotionally immersed in the COVID-19 pandemic, to announce that **docomomo Journal 62** is dedicated to the issue of health and healthcare facilities, entering the realm of “hygiene” with the goal of debating the process of modernization as a medical procedure. When we started working on this, some months ago, with the collaboration of experts who have generously reflected on these matters – academics, thinkers, critics, architects, historians, and urbanists – we could not have imagined the topic would be so relevant to what everyone is now going through. The “Cure and Care” theme could not have been more timely!

The aim of this **docomomo Journal 62** is to debate the healthcare agenda as a fascinating topic at the conceptual core of Modern Movement architecture. Investigation into healthcare facilities involves dealing with multiple spheres beyond the technological, physical and psychological. Nowadays, the growing emphasis on wellbeing goes beyond the seminal ideas that modern buildings were cleansing machines, or that modern architecture and urbanism were shaped by bacteria. Presenting some stimulating philosophically-orientated essays, this journal makes a link between the Modern Movement and what we have entitled the “Cure and Care” concept, connecting health and the environment, body and design. Considering healthcare buildings and their role in the welfare policy of societies, the discussion addresses future challenges, driven by developments in technology and medicine, envisaging a key role for healthcare facilities in ensuring a sustainable built environment.

In the last 50 years, poverty and famine have declined, whereas healthcare, education and emancipation have improved significantly worldwide. All this was possible because of modernity's faith in scientific and technological innovation. Yet, this striking progress has also produced some incredibly damaging effects. Efforts to renew the world, using pre-existing structures, run counter to an obsession with the new, which still dominates our behaviour. On an historical, cultural and social level, the development of appropriate techniques of conservation and rehabilitation for a sustainable built environment, includes reflecting on “Cure and Care” structures. Furthermore, a wider outlook is needed on the complexity of curing and caring in the 21st century, which addresses the issue of sustainability beyond its material boundaries, and

considers larger societal concerns, particularly those related to cultural concepts, the sense of belonging and identity. As health becomes a central focus of political debate, the question arises whether architects, engineers and planners are able to follow the social and medical experts, in seeking a new disciplinary and political agenda to deal with the innovations in medical science and technology.

Celebrating 150 years since the birth of Tony Garnier (1869-1948) **docomomo** highlights this innovative heritage, focusing mainly on healthcare facilities under threat. Publishing in these dramatic times, **docomomo** International honours the memory of Vittorio Gregotti (1927-2020), who passed away this March due to COVID-19. Moreover, **docomomo** International pays homage to all the victims and their families in this unprecedented situation, by symbolically publishing an article on the Spanish Pantheon in Rome (1957) designed by José María García de Paredes (1924-1990), Javier Carvajal (1926-2013) and sculptor Joaquín García Donaire (1926-2003).

I would like to thank and acknowledge the commitment of Daniela Arnaut, who acted as guest editor of this “Cure and Care” issue. Her work and perseverance were shared by the authors who contributed generously with their knowledge and research. Lastly, it is time to highlight an absolutely exceptional Modern Movement building – the Sanatorium Zonnestraal (Jan Duiker and Bernard Bijvoet, 1925-1931), which has stood as a benchmark for **docomomo** since its creation. To consolidate the global status of this healthcare facility and modern monument, it was magnificently restored and, as Bruno Reichlin argues, the architects (Hubert-Jan Henket and Wessel de Jonge, 2001-2009) successfully recreated its original splendour (Paul Meurs; Marie-Thérèse van Thoor (eds.), *Sanatorium Zonnestraal. The history and restoration of a modern monument*, Rotterdam, Nai Publishers, 2010).

Notes

- 1 The project *Cure and Care - the rehabilitation* is a Portuguese National Fund (FCT-Fundação para a Ciência e Tecnologia) research project (PTDC/ATPAQ1/ 2577/2014) hosted by the Instituto Superior Técnico (IST) – Centre for Innovation in Territory, Urbanism, and Architecture (CITUA) with the aim of studying healthcare facilities built in Portugal in the 20th century.

Cure and care at the cradle of innovation

BY DANIELA ARNAUT

“Illness is the night-side of life”¹ tying one’s up in its own body and weaknesses leading either to curative or care spaces that instead of bringing hope bring to mind loneliness and death.

Even if the tendency is to believe in the efficiency of medical processes, the collective memory of healthcare buildings is related to discomfort. Ill bodies enter a machine where they are homogenized, losing autonomy and privacy. Intimacy is exposed in a public domain. In healthcare buildings the focus is on medical procedure and not on the prostrate body, which is the real origin and dimensional parameter of these spaces.

Healthcare buildings were recognized as therapeutic instruments by the end of the 18th century, matching the cradle of Modernity coated with optimism and the belief in progress and innovation. As Georges Teyssot states, the “dream” of Modernity would “merge two genealogies total sanitarianess and total technology”. The inheritance of *machines à guerir* comprises the driving forces of Modernity. From the social mission at the root of their existence, to the permanent call for constant renewal, as well as the total engagement with a sustainable future, they are required to reinvent themselves within their existing envelopes.

Health is a primary issue, it allows civilization. The current COVID-19 pandemic, as the actual isolation scenario, gives a clear awareness of the importance of public health systems regarding the role of the existing buildings.

Healthcare buildings draw together high technology, scientific and medical knowledge, research on the human body, and emerging social challenges searching for answers and trying to assure optimal health assistance. These were the reasons behind the design of the Zonnestraal Sanatorium (1925-1931), by Jan Duiker (1890-1935) and Bernard Bijvoet (1889-1979) and which restoration project, by Hubert-Jan Henket (1940-) and Wessel de Jonge (1957-) is at the root of **docomomo** and its foundational Eindhoven Statement (1990).

Healthcare buildings are essential tools for the preservation of civilization, are at the root of Modernity, at the root of **docomomo**, and are paradigmatic buildings where the permanent call for transformation implies a sustainable future. However, interventions mostly lack the support of appropriate architectural knowledge. Considering that most healthcare buildings were built during the 20th century, this raises three topics of research. First, the need to document healthcare buildings. Secondly, from that knowledge create

intervention strategies which should be design together within institutions. Finally, in order to attain a sustainable future, is important to anticipate the 21st century body and illnesses and hopefully contributing to informed actions regarding their reuse. By establishing four main ideas on the architectural value of 20th century healthcare buildings, and by identifying three main paradigms of change on healthcare programs, Paulo Providência addresses exactly these topics regarding the importance of developing a deep knowledge in order to repurpose healthcare buildings within the arising opportunities.

Order was the key principle in achieving the hygienic environment established by the pavilion type of hospital during the 19th century. This curative “wind machine” lost its relevance at the beginning of the 20th century, when medical science and new construction technologies allowed a higher level of efficiency redesigning healthcare architecture. The pavilion hospitals, such as the Edouard Herriot Hospital (1910-1933), in Lyon, by Tony Garnier (1869-1948) would lose their importance as “garden-hospitals”.

The Industrial Revolution created the need to sanitize cities such as the well-known urban plans and models of Georges-Eugène Haussmann (1809-1891) for Paris in 1853, the plan for Barcelona in 1859 by Ildefonso Cerdà (1815-1876), and the “garden-city model” (1898) by Ebenezer Howard (1850-1928). Also Frederick Olmstead’s (1822-1903) design for Central Park in New York, at the end of the 19th century, was, like the previous, a social project. But, as Catherine Maumi considers, this landscape architecture project, besides being a sanitary tool had an innovative aim towards Americans’ mental health, reflecting Olmstead position as a landscape architect.

By this time, sanatoriums were conceived as therapeutic models where the body was exposed to therapeutic air and sun. The necessity for hygienic environments, generated pure volumes, white laboratorial ascetic surfaces, expressing simultaneously the experimental character of the new materials and the enthusiasm for a new architectural expression. Philippe Grandvoinnet brings an overview to the origin and development of this new typology as a translation of a medical treatment demonstrating that there is still lacking an overall strategy for the future of sanatoriums.

Standardization combined with X-ray machines and the discovery of bacteria, progressively replaced the pavilion type with compact and vertical solutions. This new typology refers to a generic human body that inhabits an “International Style” of compact buildings regardless of

context and body perception. Standardization of construction recall medical procedures where the concentration of people means a bigger sample to analyze and foster scientific knowledge. The first examples were built in New York at the Columbia-Presbyterian Medical Center (1925-1932), by James Gamble Rogers (1867-1947). In Europe, probably the first was the Beaujon Hospital (1930-1935) by Jean Walter (1883-1957), Urbain Cassan (1890-1979) and Louis Plousey (1880-1936).

After WWII (1939-1945) the body started to be seen as an integrated entity of body, mind and social context as it can be read in the World Health Organization (WHO) constitution foundation from 1948. The abstract, standardized body is replaced by an individual being that inhabits a humanized space conceived from the relationship to the context and the true expression of materials. Comfort takes its place in healthcare buildings as part of the efficiency demand. In order to achieve higher efficiency and flexibility, new buildings divide diverse functions into diverse volumes, leaving the compact model, as in the 1952 design by Óscar Niemeyer (1907-2012), Hélio Uchoa (1913-1971) and landscape architect Burle Marx (1909-1994) for the Sul América Hospital. Donato Severo discusses the France-USA Memorial Hospital of Saint-Lô (1948-1965) by Paul Nelson (1895-1979), where architecture is a humanist tool for physical and psychological comfort echoed in the use of colors, the greenish ovoid surgical rooms, or the art inclusion.

Cor Wagennar establishes the chronology of the roots of hospitals from the 18th century to the *Breitfuss* type built after the WWII stressing the links between medicine and Modernism. The author questions the relationship between hospitals and the ill body, discussing the role of architecture in the healing process and how to use extant valuable buildings.

In Paimio Sanatorium (1929-1933), by Alvar Aalto (1898-1976) comfort guides all the building's design integrating the specificity of the ill body, "[t]he ordinary room is a room for a vertical person: a patient's room is a room for a horizontal human being, and colors, lighting, heating, and so on must be designed with this in mind".² Aalto understood the long stay and the necessity of allowing patients to escape their own bodies through architecture. Charles Giraudet reveals the work of Isadore Rosenfield, an architect who, like Aalto, considered the patient at the core when designing the Goldwater Hospital (1939). In an inspiring essay, Giraudet underlines the architect's determination to design a therapeutic instrument. Equally significant is Rosenfield's questioning of the program and the assumption that the architect was the only professional able to synthesize the social context and health conceptions within architecture.

From this overall view one can assume that efficiency and comfort, where order and hygiene are at its basis, are the main parameters of healthcare buildings' architecture. The digital revolution is introducing new conceptions of comfort regarding healthcare. From monitoring ourselves, to online medical appointments, curative and care spaces are becoming highly specific and generic simultaneously. The existing buildings are a dual body with functional areas similar to a tailor-made suit for a close-fitting system and at

the same time with rational, neutral areas. On the other hand, the concepts of obsolescence and transitoriness are clearly related to healthcare buildings such for sanatoriums or psychiatric hospitals, which lost their relevance from an era prior to the availability of drug treatments.

Every period of history has its own typical illnesses, depression and burnout are the 21st century illness derived from hyperactivity and professional exigence.³ Borasi and Zardini call for the challenging comprehension of the quicksand under one's feet regarding bodies, health and the uncertain contemporary world, calling attention to architecture and urbanism as a means for reflection on a sustainable future. In this context, Colomina and Wigley describe modern architecture as a movement opposing bacteria, built as a medical procedure to recover, and demonstrating how hyper cleanliness and isolation environments transform the human microbiome leading to illnesses. In an inspiring and unsettling discourse, the authors call for a wider understanding and integration of bacteria as part of the world we live in and push for a reconsideration of the concepts of shelter and care.

If the invention of curative space was intertwined with societal changes that introduced order and hygiene, what will be the role of the existing hospitals towards a society that is inventing a new order based on digital transformation? The COVID-19 pandemic is a thought-provoking laboratory on this question. If curative space was at the cradle of modernity, is the reuse of curative space at the cradle of the future? Can sanatoriums be reinvented as a paradigmatic typology for the 21st diseases such as psychological burnout, or as isolation locations for situations such as pandemics? What are the right intervention strategies for buildings in use?

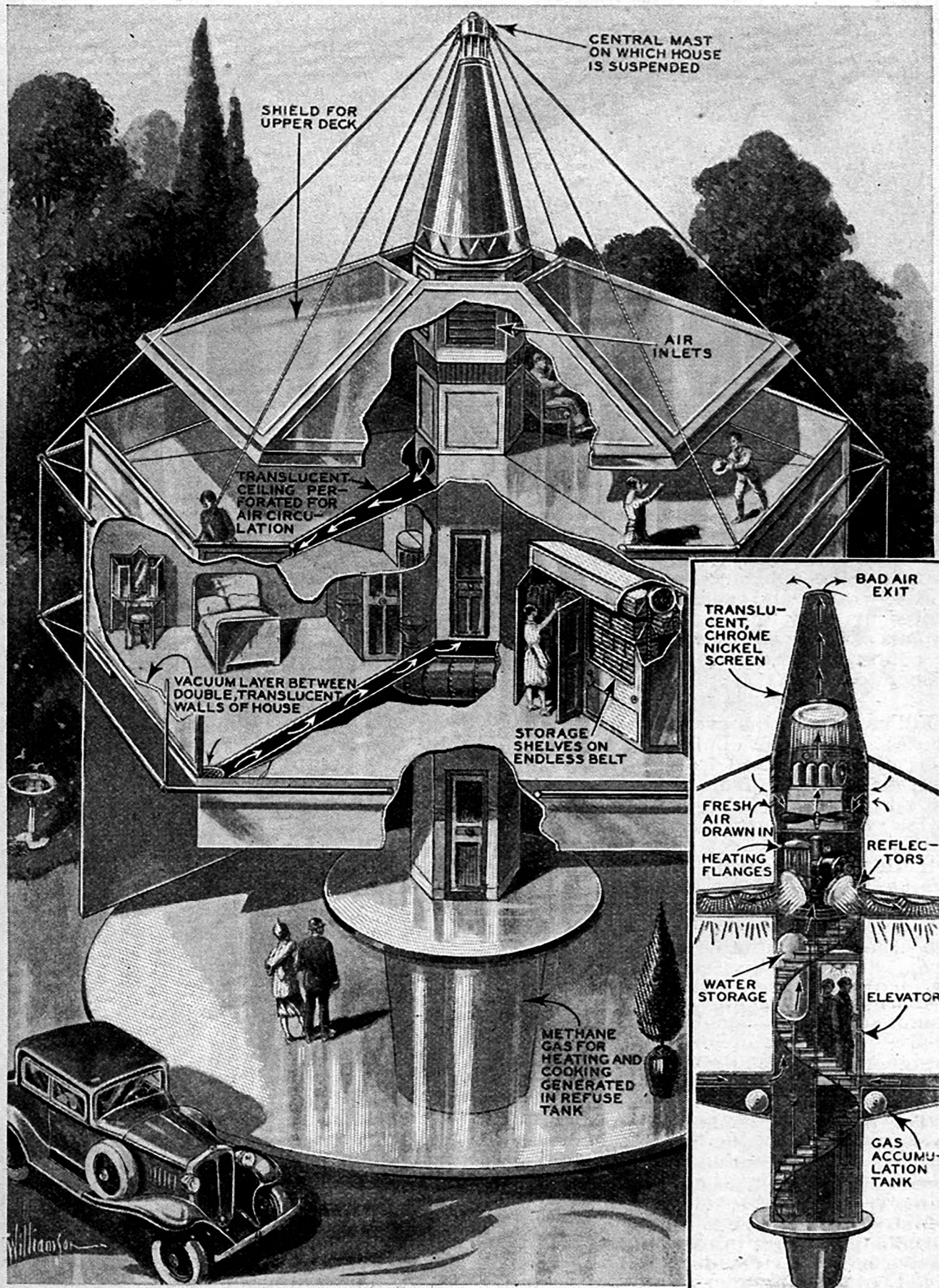
It is clear that curative and care spaces have a long path in order to be understood. Besides sanatoriums, it is difficult to find good examples of rehabilitation or protective measures, that's why this issue brings a philosophical approach about the future, health, and the relationship of the body to the city and architecture. The hope is that this **docomomo** Journal issue can be one of the steps for further discussion and research.⁴

Notes

- 1 Susan Sontag, *Illness as a Metaphor*, New York, Farrar, Straus and Giroux, 1978, 3.
- 2 Nina Heikkonen, (ed.), *Paimio Sanatorium Conservation Management Plan*, Finland, Alvar Aalto Foundation Helsinki, 2016, 48.
- 3 Byung-Chul Han, *A sociedade do cansaço*, Relógio de Água, 2014. (Mudigkeitsgesellschaft, Matthes & Seitz Berlin Verlag, Berlin, 2010).
- 4 In 2017, in Portugal, a research grant was awarded by the Portuguese National Fund to study healthcare facilities built in Portugal in the 20th century: *Cure and Care: the rehabilitation* (FCT-PTDC/ATPAQI/2577/2014). The current **docomomo** International Chair, Ana Tostões, is the Principal Investigator of that study hosted by IST-CITUA.

Daniela Arnaut

Architect and Assistant Guest Professor of Architectural Design Studio since 2009 at Técnico, Lisbon University. PhD candidate at the same university regarding 20th century Portuguese healthcare architecture. In 2016 she was the Executive Coordinator of the International Workshop of the 14th International **docomomo** Conference, in Lisbon, where she was co-session chair for "The Modern healthcare architecture: obsolescence and transformation".



Buckminster Fuller, cut-away drawing of Dymaxion house showing anti-bacterial self-cleaning technologies.
 © Illustration from *Modern Mechanix and Inventions*, September 1932.

The Bacterial Clients of Modern Architecture

BY BEATRIZ COLOMINA AND MARK WIGLEY

The human is an unstable idea; simultaneously an all-powerful creature – capable of transforming the whole ecology of the planet – yet extremely fragile, a murky ghost.¹ Contemporary research into our microbiome portrays the human itself as a mobile ecology constructed by the endless flux of interactions between thousands of different species of bacteria – some of which are millions of years old and others joined us just a few months ago. This challenges conventional understandings of architecture. What does it mean to house the human when we no longer think that the human organism is securely contained within its skin? What is the role of architecture when the humans occupying it are understood to be suspended in clouds of bacteria shared, generated and mobilized by other macro-organisms (pets, plants, insects...) and the building itself; when the human is not a clearly defined organism or in any sense independent; when the architectural client is a massive set of ever-changing trans-species alliances that make the apparent complexity of even the largest of cities seem quaintly uncomplicated. What kind of care do architects offer if we think of ourselves as alliances between bacteria within the apparent limits of the body and throughout the spaces we occupy? What faces 21st century architects in comparison to 20th century architects?

1.

A hundred years ago, Modern architecture explicitly defined itself in opposition to bacteria. If architecture shelters the human, the first responsibility was now to offer shelter from microbes. Modern buildings were modern only inasmuch as they offered a prophylactic defense, a visible filter of the invisible microbiological environment. Smooth white surfaces, expansive glass, and sun terraces were primarily instruments of health.² The buildings were understood to be cleansing machines that must themselves be constantly cleansed but also exhibit their cleanliness, exposing anything unmodern in their vicinity as a form of dirt, a stain to be promptly removed in order to preserve the wellbeing of the human.³ The limits of the modern building preserved the limits of the human by keeping microbes at bay. Modernizing architecture was first and foremost a medical procedure to evict millions of tiny threatening organisms.

Bacteria shaped Modern architecture, even acting as its invisible client. Buildings were formed by what they excluded rather than what they included. Physical, mental, moral, social and economic health were dependent on the apparent cleanliness of buildings, as conveyed by routine esthetic descriptions like “clean lines” and “pure form.” The building itself was envisaged as an organism – a body with its own skeleton, organs, circulation system, nerves, skin and metabolism – and the architect a biologist, even a bacteriologist. Human health was seen to be dependent on the health of buildings. Truly modern buildings would radiate health and health would be as contagious as any virus.

Yet architecture needed to be cured before curing its occupants. It was seen to be deeply infected. 19th century

architecture was demonized as nervous, unhealthy, and literally filled with disease, especially the bacilli of tuberculosis – the ongoing major disease threat of the time. Decorative excess was itself treated as an infection. Modernizing architecture was firstly a form of disinfection, a purification of buildings leading to a health-giving environment of light, air, cleanliness, and smooth white surfaces without cracks or crevices where contagion might lurk. Sigfried Giedion (1888-1968), the most influential historian-propagandist of the Modern Movement, insisted that the “moral” rejection of the “infected atmosphere” of ornamentation was the movement’s real source since the 1890s.⁴ Architecture was an unwell “organism” and “the wall had first to be cleansed of all decorative eruptions of the 19th century. There had to be a rediscovery of the esthetic values of the pure surface plane.”⁵ Le Corbusier (1887-1965), the loudest and most persistent architect-propagandist, argued that this act of disinfecting architecture with smooth white walls offered both physical and mental hygiene. *The Decorative Art of Today* of 1925 insists that the cleanliness of modern buildings modernizes minds, even incubates a new brain:

“His home” is made clean. Then there are no more dirty, dark corners. “Everything is shown as it is.” Then comes “inner” cleanliness, for the course adopted leads to refusal to allow anything at all which is not correct, authorized, intended, desired, thought-out: no action before thought. (...) On white ripolin walls these accretions of dead things from the past would be intolerable: they would leave a mark. (...) The white of whitewash is absolute... Put on it anything dishonest or in bad taste – it hits you in the eye. (...) The tasks of our age – so strenuous, so full of

*danger, so violent, so victorious – seem to demand of us that we think against a background of white.*⁶

Cleansing architecture of the disease of decoration produces a therapeutic image of white walls, white table, white porcelain and some flowers – “healthy, clean, decent,” “neat and clean, pure and healthy”⁷ – that in turn acts as a cleansing device for exposing and editing out anything unmodern. Cleanliness becomes synonymous with multiple gestures of stripping things down to essentials: “Throughout, all is clean, concise, brief, economical, intense, essential.”⁸ The white wall is clean because it is less and makes less become contagious.

The sun-drenched plain whitewashed walls of vernacular houses on the Mediterranean famously acted as Le Corbusier’s model but even those walls were under threat from the “dissolving virus” of industrialized ornament transmitted around the world by popular images in the latest international media.⁹ Le Corbusier cites his own travel notebooks of 1911:

*we ourselves carry the deadly germ... a cleaning out is a vital necessity, and since people have no wish to perish, they will return, yes, to health and thereby to beauty, out of simple desire to live.*¹⁰

The eventual book on that early journey described the contemporary love of machine-made ornament as a “dreadful germ,” an “infectious germ” that ruins vernacular cultures and needs to be eradicated to recover health: “Purification is a vital necessity, and as we avoid death by the simple desire to live, we shall return – yes, to the health that belongs to this epoch, a health appropriate to our contingencies, and then from there to beauty. Throughout the world *we are recovering...* No one wants to die.”¹¹

Modern architecture was prescribed as a medical recovery. Health and beauty were inseparable. Beauty was even a product of health, just as the brain, in turn, was a product of beauty. For Le Corbusier, the technologies shaping modernity are intrinsically healthy. The history of technology itself is understood as a form of purification that progressively discards excess in the name of efficiency. In reverse, ornament is by definition anti-technology, anti-health. *The Decorative Art of Today* argues that with the early 20th century avant-garde movements of Futurism, Expressionism and Constructivism, the spirit “is still feverish, but this time there is a promise of a cure (...) thanks to purifying technology.”¹² Modern technology will paradoxically recover the pre-technological “purity” that unites the 20th century human with their uncontaminated origins. Humanity will finally cure itself.

The 1923 manifesto *Towards an Architecture*¹³ argued that most fundamental architectural gesture is to define the human by separating its organism from nature: “A house that will be this human boundary that encloses us and separates us from antagonistic natural phenomena, giving us, we men, our human milieu.”¹⁴ The human becomes human with architecture. But the antagonistic nature that now needs to be kept at a distance is bacteria. Unhealthy buildings

have turned their occupants: “We are unhappy living in unworthy houses because they ruin our health. (...) The house eats away at us in our immobility, like consumption (Tuberculosis). We will soon need too many sanatoria.”¹⁵ The clear lines and Spartan smooth surfaces of medical facilities are urgently needed to recover the clearly defined outline of the human.

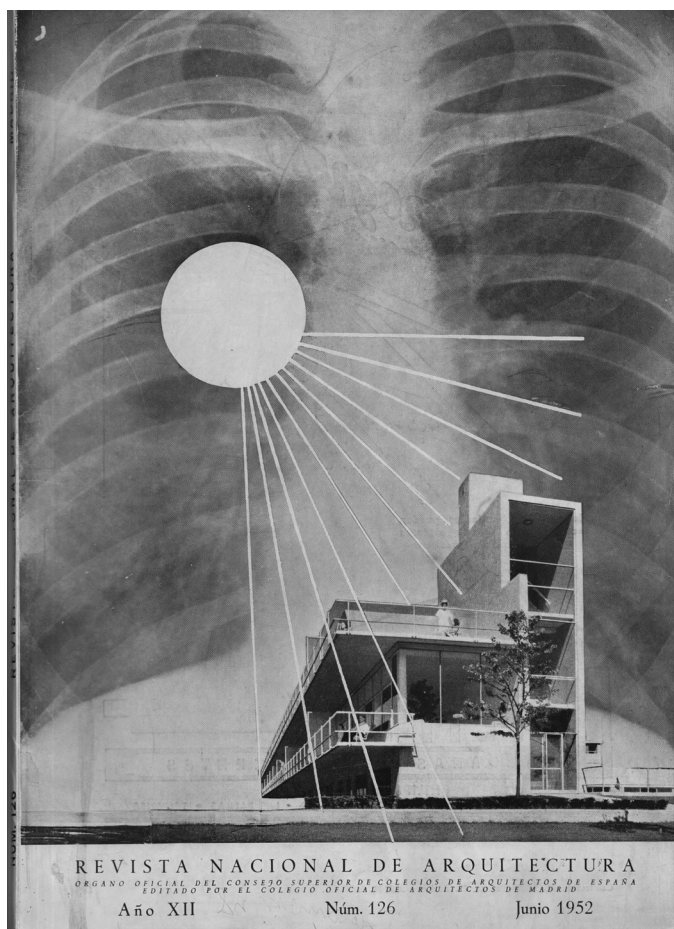
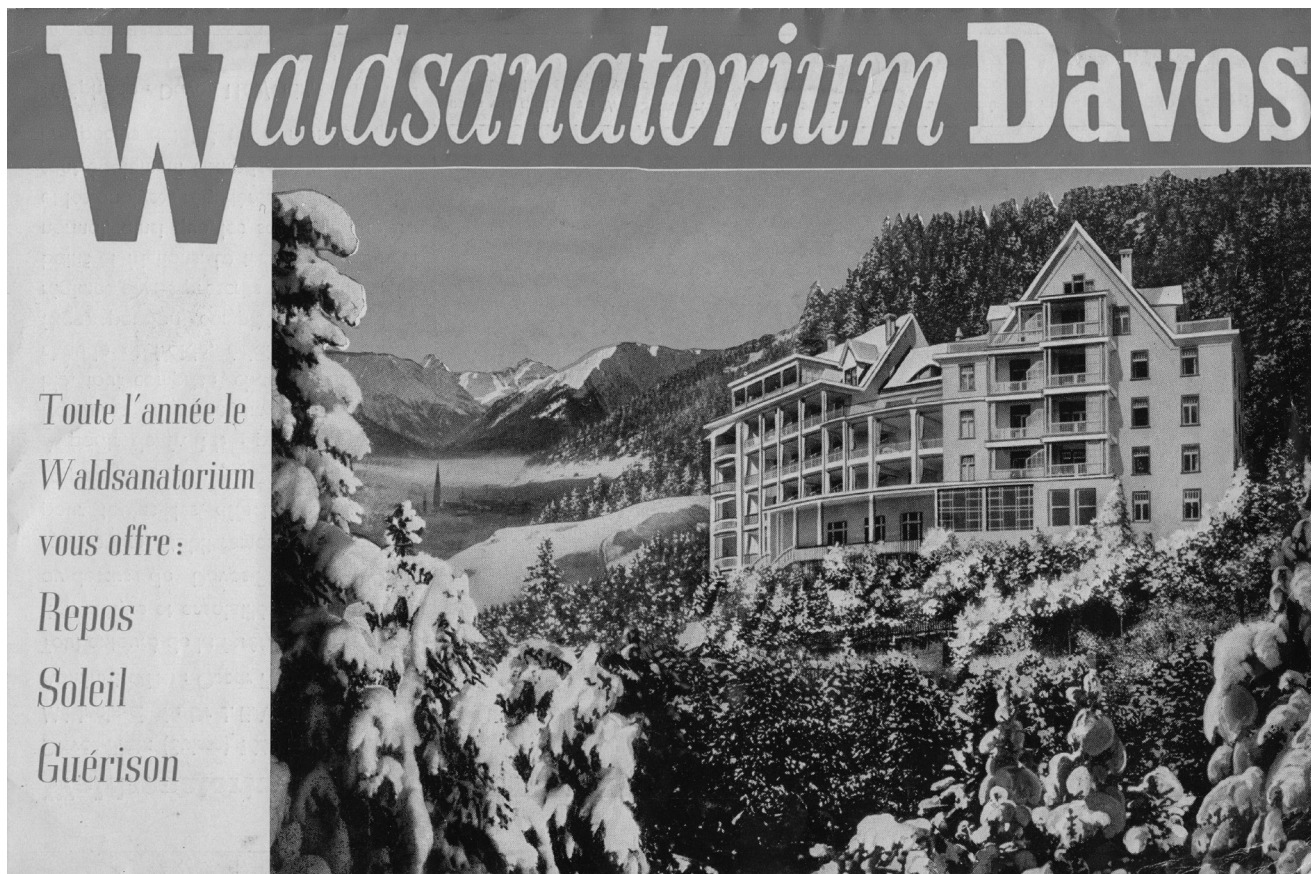
2.

This entire medical and esthetic prescription – air, light, cleanliness, smooth surfaces, undecorated simplicity, utility rather than excess, and white walls – was made in face of the ongoing crisis of tuberculosis. Modern architects directly absorbed the design principles instituted by late 19th century tuberculosis sanatoria into all building types as both prevention and cure.¹⁶ These principles had, in turn, been directly inherited from the sanitary reform movement. This massive movement – launched in England and France in the 1830s and spreading rapidly through the rest of Europe and the United States – was a response to waves of devastating epidemics blamed on the urban effects of industrialization and turned into law as a way of sustaining industrial development and social control even if couched in terms of a new concept of “public health.” Architecture itself was identified as the cause of disease and therefore the only way to resist it. Doctors started acting as architects and architects as doctors.

In 1883, for example, *Our Homes and How to Make them Healthy* of 1883 – a 947 page compendium of articles by doctors and architects edited by Shirley Foster Murphy (1841-1923) who was just about to become chief medical officer of London – began by arguing that the unique human ability to make buildings as protection against the external environment had “constructed” disease:

*Man, by a knowledge and skill not possessed by the inferior animals, in building cities, villages, houses, for his protection from the external elements, has produced for himself a series of fatal diseases, which are so closely associated with the productions of his knowledge and skill in building as to stand in the position of effect from cause. “Man in constructing protections from exposure has constructed conditions of disease.”*¹⁷

Architecture itself had to be treated as a pathology. The 92 chapters of the book systematically identify the unhealthy conditions of every architectural element: site, foundations, roof, floors, walls, windows, layout, corners, plumbing, joints, finishes, plaster, paint, wallpapers, carpets, curtains, blinds, ornament, moldings, cornices, mortar, absorbent surfaces, etc. The primary enemy in the urgent battle for health is the accumulation of dust, dirt and filth that harbors disease. Anything that attracts such build-up has to be removed in favor of smooth washable surfaces. The enemy is organic, decomposing traces of the human, excrement from the gut, lungs and the pores of the skin that are absorbed by the building or accumulate in its linings, ornament, unnecessary complexities, crevices, cavities, and coverings. The house can only shelter the human by being cleansed of human traces.



02 Cover of the *Revista Nacional de Arquitectura*, June 1952 with an image of William Ganster and William Pereira Lake County Sanatorium, Waukegan, Illinois, 1939, superimposed on an X-ray of lungs.

The healthy house needs to be detached from the human in order to cure the human. Dust means disease. Light is cleanliness. Darkness is a form of dirt.

As with Le Corbusier, the cleansing is mental, moral, and modern. The simplification of surfaces reduces stress on nerves, producing a “healthy” decoration through an esthetic sanitation of the visual field that rebuilds the morality of the occupant.¹⁸ The very call for the removal of anything useless is again treated as a form of sanitation, removing sources of dust and dirt, but also cleaning the eye, organization patterns, mechanical operations, and the mind.

Throughout the book, the requirements of a healthy house are the same as for a hospital, with so many people sickened by their dwellings that homes were paradoxically also hospitals. There are extended chapters on “home hospitals” (turning housing into public hospitals) and the need for designated “sick rooms” within private houses.¹⁹ The specific “directions” to follow are those of Florence Nightingale (1820-1910), the activist nurse whose *Notes on Hospitals* of 1859 called for ventilation, large windows, cleanliness, smooth floors without gaps and white walls (polished to be sealed, reveal dirt and increase light levels), simple plans with few corners, minimal utilitarian furniture and no extraneous fabrics or decoration.²⁰ In her most famous book, *Notes on Nursing* of the same year, this architectural prescription was immediately applied to “preserving the health of houses.”²¹

Nightingale advocated an environmental theory of disease – where environment specially means the human environment, human-made conditions of inhuman life. Disease was the product of “organic matter” attaching itself to every surface only to foul the air and thereby return to sicken the human. The Nightingale prescription was to develop systems whereby anything coming out of the human body passes through the building to the outside via disposal systems that don’t leave a trace on the building or city – starting with bandages, clothing, bedding, furniture, and room surfaces. The idea was to relentlessly clean the body of the building and the body of the human, flood the space between them with health-inducing fresh air and light, then keep that space under constant surveillance. As with Le Corbusier, the blankness of a wall surface from which all human traces have been removed allows the human to restore itself physically and mentally. Nightingale wrote extensively on the need to reduce noise and visual complexity to calm the nerves of patients so that the body could cure itself.

Nightingale had taken over the role of the main spokesperson for the sanitary reform movement in England from Edwin Chadwick (1800-1890) whose 1842 statistical report to the government on the unhealthiness of the modern metropolis (drawing on data, observations and recommendations from medical officers throughout the British Isles, along with reports from France and Germany) had led to the first public health laws in 1848 that would be echoed throughout Europe and included the public imposition of “whitewashing, cleansing, or purifying” of houses on private home owners and occupiers.²² Yet it is better to understand

such figures as symptoms of a broad, multi-disciplinary, international movement rather than its instigators or leaders. The arguments were being made in an extremely wide range of professional and popular journals, newspapers, exhibitions, associations, parliamentary debates, and the courts. Nightingale’s architectural protocols had already been formulated in diverse texts by others on hospital design, home hospitals, sick rooms and domestic interiors.²³ The massive infrastructural work of constructing urban clean water and sewer systems in the face of devastating epidemics like cholera and typhoid fever wanted to head indoors from the beginning. In fact, Chadwick’s report began with a discussion of the unhealthy interior of working-class dwellings before talking about the unhealthy exterior and the interrelationship between them. It was all a matter of social engineering. Cleaning the street is inseparable from cleaning the home that supposedly encourages people to clean themselves, which increases morality, respect for law, and productivity. The domestic interior becomes the basis of national regimes of surveillance, discipline and control.

But Chadwick’s recommended strategies for compelling the cleaning of dwellings, removing ornament, smooth surfaces and white walls were already well established.²⁴ Deep cleaning of buildings, furniture and fabrics followed by white-washing had been the standard strategy of disinfection imposed as a “police action” since the early 1830s, in the face of cholera, that was itself based on the imposed deep cleaning and whitewashing of dwellings at the turn of the century in response to small pox infections.²⁵ Public legislation increasingly entered private dwellings throughout the century to carry out these cleansing actions out.²⁶ The real innovation of the sanitary reform movement represented by Chadwick was to transition from using this strategy to cure infected houses to using it to make houses that prevented infection.²⁷ Architects were immediately mobilized by the concept of preventative health-inducing buildings.²⁸

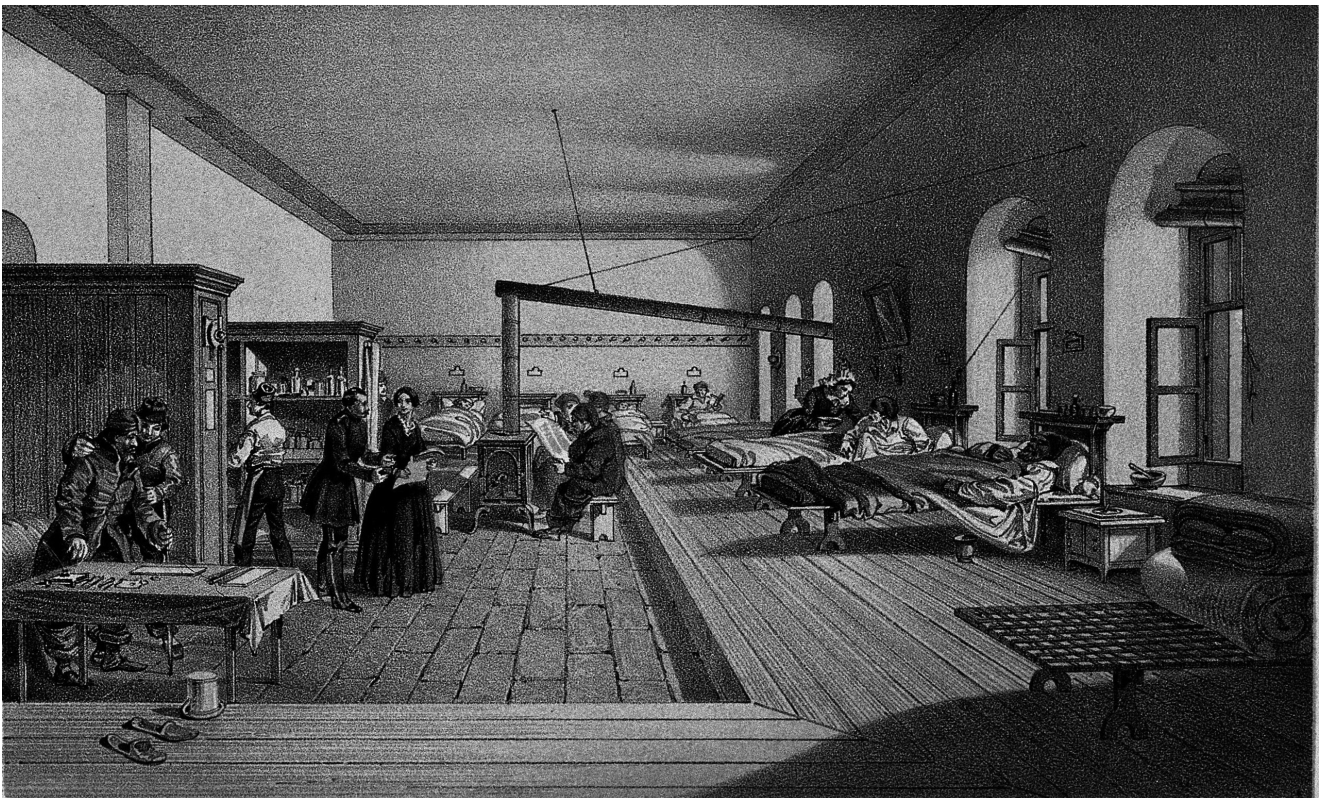
The sanitary reformers rejected the theory of contagion (infection through touch) for most diseases in favor of the atmospheric concept of miasma (foul air) but had no problem in absorbing the germ (bacterial) theory of contagion once demonstrated in the laboratories and field tests of Louis Pasteur (1822-1895) and Robert Koch (1843-1910) in the early 1880s, even deploying it to their own ends. As Bruno Latour (1947-) has shown, the sanitary reformers actually propelled the bacteria theory, not just absorbing it but accelerating it way beyond the available evidence at the time.²⁹ The huge 1884 health exhibition in London, for example, (where all the writers of *Our Homes and How to Make them Healthy* played a prominent role) already included a working biological laboratory demonstrating the techniques of Pasteur and Koch’s work, with banks of microscopes for the public to looking at living bacteria. All the environmental protocols remained in place with the new theory, since they were, by chance, all effective against bacteria – with experiments of the late 1870s having shown that bacteria were, indeed, harbored in dust and that

03 Richard Döcker, Waiblingen Sanatorium 1928, patients on the stepped terraces. © Illustration in Sigfried Giedion, *Befreites Wohnen*, 1929.



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Essays



04 Lithograph of Florence Nightingale in one of the renovated wards in the hospital at Scutari (Turkey) during the Crimean War, 1856, exhibiting the spaciousness, light, ventilation, and whitewashed walls that she advocated. © Tinted lithograph by E. Walker after W. Simpson. Wellcome Collection.

sunlight rapidly kills them. When these countless billions of invisible bacteria became the main actors, and needed to be evicted from buildings, the call to modernize architecture and the strategies to do so remained the same. If anything, it simply took on a whole new level of urgency.

3.

This discourse at the intersection of medicine and architecture was fully absorbed by subsequent generations of architects. Not by chance does the first book simply entitled *Modern Architecture*, published by Otto Wagner (1841-1918) in 1896, identify the two main conditions demanded by “modern man” as: “The Greatest possible convenience and the greatest Possible Cleanliness.” Anything inconsistent with utility and hygiene “will prove incapable of living.”³⁰ The text insists on “the fact that artistic effect is inseparable from cleanliness” and that architects have to keep abreast of the field of hygiene because “these modern achievements demand truly new artistic forms.”³¹ The need for “smooth surfaces,” “systematically cleaning,”³² light and clean air are just demands. Wagner complained about Vienna’s “cultures of bacteria” and “hygienic practices that cannot be sufficiently condemned”³³ as opposed to the “more habitable, healthier, cleaner, and more beautiful” examples to be found in well planned German cities.³⁴ Unsurprisingly, Wagner favored smooth white surfaces and suggested that hospital rooms be the models for all domestic spaces.

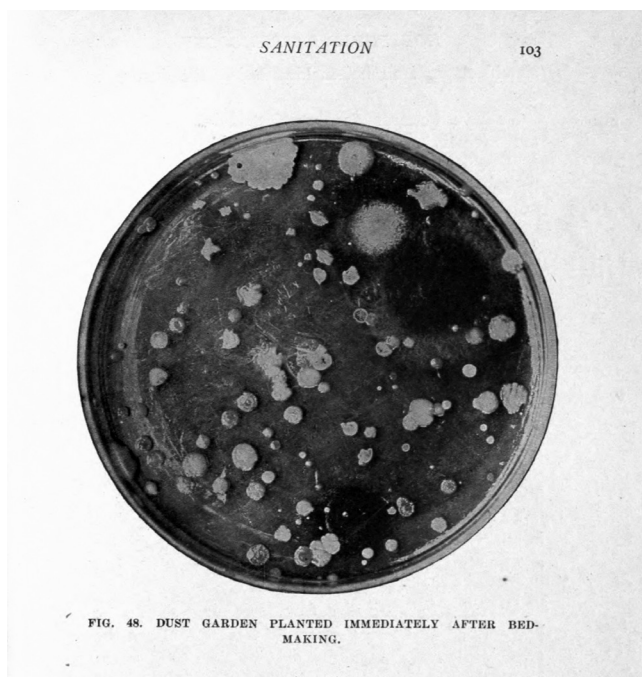
Wagner’s student Leopold Bauer went further in an 1899 book that equated utility and simplicity with cleanliness, physical exercise, and modern clothing. The “simple, clear, prismatic basic forms” with “large white wall surfaces” of vernacular houses in Capri were the model – along with the latest English designs and attitudes to hygiene. In contrast, the excessively ornamental woodwork of the Austrian interior attracted dust and dirt that needs to be “repelled” by smooth shiny surfaces in a “war on dust” to be fought in the streets and in interiors.³⁵ Bauer’s colleagues (his fellow architects in the Vienna Secession and his two classmates at the Brno technical college a decade earlier, the permanent rivals Josef Hoffmann and Adolf Loos) disagreed about almost everything yet collectively turned Vienna into the epicenter of the sanitary aesthetic of white.³⁶

Similar arguments for “hygienic” buildings, the codification of smooth white surfaces and use of hospital rooms as the model, were made by many architects in the first years of the 20th century.³⁷ It was a time in which popular magazines were relentlessly insisting on white as the basis of cleanliness in domestic management (on walls, counter-tops, towels, sheets, table cloths, aprons, etc.). An 1898 article by the feminist writer and home economics pioneer Helen Campbell in the magazine *House Beautiful* even argued that “the microbe” had been the most active promoter of advanced interior design: “without him the best forms of interior finishing would still be but the dream of the too-progressive architect.”³⁸ Architects had unwittingly devoted themselves to making perfect “lodging” for microbes with layers of ornamentation and were only just

catching up to the call for “smooth surfaces” without cracks to remove the “housewarming” they had long offered invisible microbes. Women were advised by fellow home economics founders like the scientists Ellen Richards (1842-1911) and Sophronia Maria Elliott to leave out petri dishes to see if any bacteria had survived their cleaning routines. With these exercises in “household bacteriology,” a magnifying glass or preferably a microscope was recommended as a standard domestic tool to study the “colonies” of different bacteria in response to different cleaning strategies in each part of the house.³⁹ The house itself was to be treated as a laboratory presided over by the housewife-bacteriologist.

Architects typically pursued the protocols of hygienic architecture in projects for worker’s housing but also middle or upper class dwellings and civic buildings, in close collaboration with doctors and social reformers. Many were on government commissions or medical committees, publishing books on the subject and establishing building societies devoted to it.⁴⁰ The very idea of social reform was treated as a medical act, with a concept of social hygiene and a thinly-veiled undertone of eugenic purification of “the” species.⁴¹ The white code was unambiguously racial. Even the advice to housewives to defend the house against bacteria was understood as the defense of a white race. A clean environment was equated with a “pure” race.⁴² The threat was both external – bacteria as the invasive alien – and internal – with the need to expel all excreted traces of the inhabitant in a kind of reverse xenophobia of the body’s own interior by creating highly surveilled borders to keep what was once inside emphatically outside. Le Corbusier’s insistence that a law requiring smooth white walls in all houses would be “a police task of real stature and a manifestation of high morality” simply restated the original sanitary reform argument that clean houses produce clean bodies and minds that had already been written into the law as a matter of racial purification.⁴³

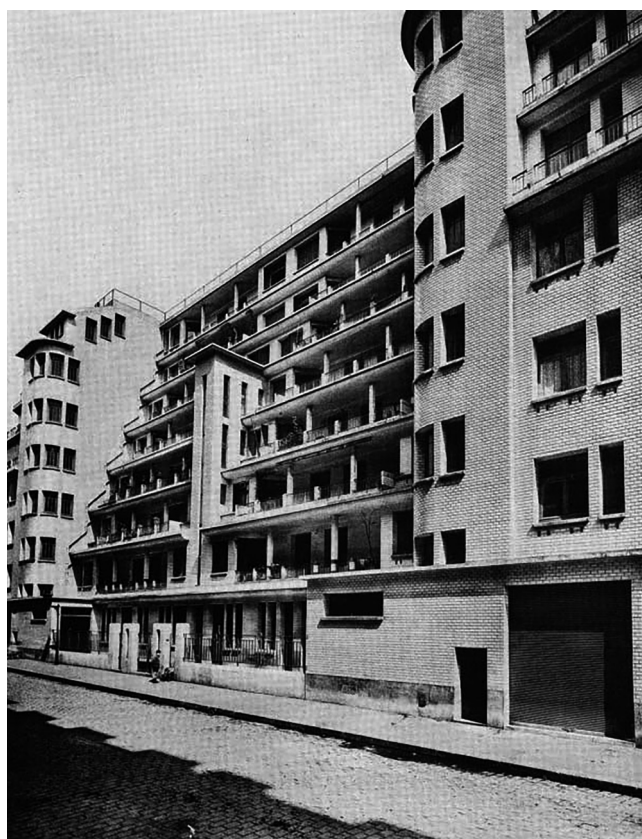
Le Corbusier and his post-war colleagues inherited rather than invented a set of architectural protocols that rehearsed the environmental theory of disease in the name of bacteria, preserving the basic idea of removing traces of the human from buildings and calling for the smoothest surfaces of building and body and the associated culture of surveillance. At the intersection of miasma and contagion, Le Corbusier published statistics on the huge number of bacteria per cubic meter in the air of Paris streets and insisted on the need for “exact air” that is “freed of dust, disinfected,” “purified” like the water supply to prevent epidemics.⁴⁴ This bacteria-free air circulating inside buildings independent of the outside air was to be the very “cornerstone” of modern urbanization and a rebirth of the human: “I place man in a new environment: he is strong, smiling, healthy. Illness suffers a crushing defeat.”⁴⁵ The “artificial” environment essential to human wellbeing is a disconnection from bacteria. The basic principle is disinfection and isolation, the core defense against epidemics. Modern architecture is an epidemiological strategy. Le Corbusier described his architectural work as that of a bacteriologist, just as Giedion would of history writing.⁴⁶



05 Bacteria grown in petri dish immediately after bed making.
© Illustration in S. Maria Elliott, *Household Bacteriology*, 1904.



06 Leopold Bauer, kitchen of Villa Kurz, Jägerndorf, 1902-1903.
© *Dekorative Kunst*, Vol. 8, 1905.



07 Henri Sauvage and Charles Sarazin, "hygienic" housing absorbing the sanatorium logic with stepped sun terraces and complete cover with white ceramic tiles, Paris, 1922. © Illustration from *L'architecture vivante*, spring, 1926.



08 Le Corbusier and Pierre Jeanneret, entrance to Villa Savoye, 1929.
© Illustration from *Oeuvre complète Volume 2, 1929-1934*.

With the canonic Modern architecture of the 1920s, the almost century-old sanitation strategy targeting ornament and crevices in the name of smooth white walls and utility was no longer a way of treating infected architecture or using architecture as a form of preventative treatment against infection. It was not something done to or with architecture but was now the very sign of architecture itself. Le Corbusier's innovation was simply to edit anything out of buildings that didn't contribute to the logic and esthetic of sanitation. He didn't just polemically flaunt white porcelain cleansing equipment in living spaces.⁴⁷ The whole building had become a piece of sanitary equipment.

Le Corbusier was an extreme symptom constructed by the diseases he resisted, yet was far from alone. Buckminster Fuller (1895-1983), for example, was convinced that the death of his first child in 1922 in Chicago at the age of four was caused by the unhealthy quality of the apartment they were living in and devoted himself to a self-cleaning and filtering architecture with relentless anti-bacterial details like no crevices for harboring germs or door handles to distribute them, the obsessive design of sanitary equipment and even microscope photographs of bacteria on the skin of his students.⁴⁸ There were no white walls in Fuller's architecture since even walls were evicted in favor of "healthy" 360 degree windows. Fuller the germophobe was an extreme case of what would be a generic sustained logic. Charles Eames (1907-1978), John Entenza (1905-1984), Eero Saarinen (1910-1961) and Herbert Matter (1907-1984), for example, re-asked Le Corbusier's question "What is a House?" in 1944 – a year after the discovery of the antibiotic streptomycin but five years before it was successfully used on patients to cure tuberculosis. The industrialized house of the near future would feature an array of anti-bacterial technologies in addition to chemical sprays which guard against insects for six months, including: a device for electronically cleaning air of bacteria, a "bacteria destroying" lamp in the refrigerator, and sterilization lamps "the rays of which destroy bacteria, can arrest the spreading of infectious diseases" in water and storage units.⁴⁹

This matches the anti-microbial obsessions of post-war domestic life with its ever-expanding array of disinfecting chemicals, application methods, and cleaning protocols targeting the bacteria on different surfaces of buildings, furnishing, appliances and people. The filters once found only in laboratories and hospitals migrated into the home to sanitize the water and air and a kind of hygienic glow became the very mark of domesticity – reinforced by ever-expanding medicine cabinets targeting different parts of the body's interior.

4.

Today this paradigm of relentless defense against bacteria is understood to be a direct threat to human health. The sick building syndrome, for example, is paradoxically produced by the supposedly clean, isolated and air-conditioned works of Modern architecture. The prophylactic line between inside and outside is unhealthy. In fact, the latest science supports the late 19th century argument that the very ability

of humans to define a protective interior with architecture is the source of illness.⁵⁰ The oldest traces of infectious diseases like tuberculosis are found in 9000 year old Neolithic settlements that coincide with the earliest agriculture and domestication of animals.⁵¹ These diseases are a product of architecture and have co-evolved with their human host, where the host is now understood to include buildings as a living part of its organism. There was never an uncontaminated architecture and that very concept is a threat to the human.

According to the "hygiene hypothesis," the reduction of infections in urbanized society has fed the rise of allergies and auto-immune disorders linked to cancers, diabetes, depression and neurodegenerative disorders like Alzheimer's. The argument is not against domestic or personal cleaning and regimes of public health, but the multiple logics of isolation in contemporary urban society that reduce microbial diversity. More precisely, our effort to detach ourselves and evict the greatest threats is self-sabotage when it also removes many of the seemingly insignificant micro-organisms that we co-evolved with long before using buildings to make settlements.⁵² Bacteria were the first life forms on land – more than three billion years ago – and we recent arrivals – just a few hundred thousand years ago – are made of bacteria and dependent on them. Reducing the diversity of bacteria is now understood to be the real problem. This calls for a return to an environmental theory of health. Yet this time it is not about a bacteria-harboring environment but bacteria as environment.

The idea of bacteria as an alien invasion gives way to understanding bacteria as our oldest companions – inside, on, and outside the limits of our skin. This paradigm shift can be grasped with the obvious yet destabilizing thought that the human is made of its apparent outside. We continually make ourselves by breathing and eating, digesting what seems to be outside through countless filters and expelling much of what has been temporary made to seem inside, and continually rebuilding all those parts that seem fixed in a relentless flux of billions of elements. The line between inside and outside was never a line but a vast number of overlapping and enfolded sets of filters. There was never a discrete organism but an extended ecology with countless alliances with other ecologies – and bacteria everywhere doing the work of filtering, decomposing, and recomposing. The human is a bacterial macro-organism. Anti-bacterial architecture is anti-human.

Buildings are part of this ecology, part of the body, not just carrying the human microbiome but contributing to it and transforming it. Humans expel 36 million genome copies of bacteria per hour and these bacteria occupy spaces and return to the body, along with the bacteria of other macro-organisms. Forensic work can even identify who has been occupying a space by analyzing its microbiome. But the building microbiome, where every surface receives and sustains unique combinations of bacteria, is not simply that of humans, it is also that of other macro-organisms, companion species like plants, pets and insects. Since humans in the so-called developed north now spend 90% of



09 "Cat at left lives in ordinary Pittsburgh house, is really pure white just like the one on the right which lives in Precipitron-Equipped home."
© Illustration in "Dirty Air: Precipitron, an Electronic Filter, Will Keep Homes Clean," *Life magazine*, April 1945.

their time indoors, life is lived in a kind of continuous interior, or succession of hyper conditioned interiors, each with a specific microbiome, or rather a specific microbiome on each of its surfaces and spaces. It is now recommended that children eat dirt to strengthen their immune system, and likewise we are all advised to go outside, to get away from architecture, but no longer just to get fresh air and escape bacteria but to savor a greater diversity of micro-organisms.

The new wave of research into the microbiome of buildings began with hospitals. Just as Nightingale started her work with the observation that hospitals kill more people than cure them, contemporary research focuses on the fact that more people who die in hospitals do so from diseases of the hospital building itself than anything else. It is now argued that to be operated on in a room with an open window to the outside is probably better than in hyper-cleansed and isolated operating theater nurturing super bugs. A child born by caesarian section carries the microbiome of the delivery room rather than that of the mother, and maintains it for years, with negative health outcomes, particularly on the immune system,⁵³ and much of the long term microbiome of premature children comes from hospital rooms.⁵⁴

Building microbiome research has now moved from hospitals to schools, offices, and houses. Buildings are thought of as microbial "islands," with interacting "communities" of microbes forming a kind of urbanism. And these communities are understood to operate as "networks."⁵⁵ The idea of individuals isolated by a building from the evident complexities of urban and natural ecologies gives way to the idea of an immeasurable invisible internal networking complexity. The very idea of the individual dissolves. A new kind of politics, even an ethics of architecture, emerges in this reimagined bacterial urbanism.⁵⁶

Architecture has to rethink itself as preventive care, or even dissolve any sense of a fixed line between prevention

and cure, in more holistic understanding in which the concept of health doesn't mean absence of infection, decay, degradation, but a co-evolution with bacteria that cannot be simply divided between "good" or "bad" bacteria but much more complex.

Each pandemic, like COVID-19, necessarily reactivates all the emergency protocols of isolation, social distancing, and sanitization of every surface. These protocols are essential to slow down the spread of disease, but they weaken immune systems if turned into the ongoing basis of everyday life, just as the over-use of anti-biotics only incubates more deadly multi-drug resistant pathogens. Modern architecture was produced under emergency conditions – with millions of people still dying each year because there was no cure for tuberculosis. It treated everyday life as an emergency by monumentalizing early 19th century sanitary reform protocols as the very image of health. Alternative understandings of health are long overdue. All the architectural concepts of protection, stability, environment, comfort, order, etc. need to be reconsidered. Or, to say it more simply, the very idea of shelter and care needs to be rethought. It no longer makes sense to live in a hospital.

Notes

- 1 See Beatriz Colomina and Mark Wigley, *Are We Human? Notes on the Archeology of Design*, Zurich, Lars Muller, 2016.
- 2 See Beatriz Colomina, *X-Ray Architecture*, Zurich, Lars Muller, 2019. The standard arguments promoting Modern architecture in terms of technology, function, new materials, efficiency, lightness, mobility, standardization, and industrialization were actually subordinate to the concept of a healthy and health-inducing building.
- 3 See Mark Wigley, *White Walls, Designer Dresses: The Fashioning of Modern Architecture*, Cambridge, MIT Press, 1995.
- 4 Sigfried Giedion, *Space, Time and Architecture: The Growth of a New Tradition*, Cambridge, Harvard University, 1967, 293.
- 5 *Ibid.*, li.
- 6 Le Corbusier, *The Decorative Art of Today*, trans. by James I. Dunnett of 1925, Cambridge, MIT, 1987, 188-192.
- 7 *Ibid.*, 87, 90.
- 8 *Ibid.*, 32.
- 9 *Ibid.*, 190.
- 10 *Ibid.*, 211.
- 11 Le Corbusier, *Journey to the East*, trans. by Ivan Zaknic of 1966 book based on 19** manuscript, Cambridge, MIT, 2007, 171.
- 12 Le Corbusier, *The Decorative Art of Today*, 142.
- 13 *Vers une architecture* was translated into English as *Towards a New Architecture*. *Towards an Architecture* is a modern translation of the book and most Modernists in the English-speaking world knew Corbusier's book to be *Towards a New Architecture*.
- 14 Le Corbusier, *Towards an Architecture*, trans. by John Goodman of 1923 book, Los Angeles, Getty Research Institute, 2007, preface of 2nd edition of 1924, 83.
- 15 *Ibid.*, 94.
- 16 Beatriz Colomina, *X-Ray Architecture*, 61-116.
- 17 Benjamin Ward Richardson, "Health in the Home," introduction to Shirley Forster Murphy (ed.), *Our Homes and How to Make them Healthy*, London, Cassell & Company, 1883, 5. (Quotation marks represents italic in original) Richardson, a doctor, then goes on to list all the major diseases caused by human's "self-invented and self-constructed protections from external influences" and details which architectural features actively promote each of them. The book aims to establish uniform codes of "domestic sanitation," understood of the basis of urban and national health, to produce new "homes for human beings," or improve existing ones, and establish protocols for continuously cleansing them.
- 18 In the section of the book on Internal Decoration, Robert W. Edis insists that the jarring effect of poorly designed excessive decorated

- interiors not only harbor impurities but “exercise to an important degree an influence equally damaging to our mental as bad drainage and improper ventilation do to our bodily health.” Ibid., 313.
- 19 Every dwelling was recommended to have at least one sick-room within it for isolating infectious disease and the volume repeatedly cites the 1869 book on hospital design by the engineer Dr. Douglas Galton, specifically on the need for air and light and smooth walls without angles or ornament that attracts dust and therefore incubates disease. Galton wrote the sections of the volume on ventilation and his writings on hospital design, along with his own hospital designs, like the Herbet Hospital of 1865, closely following the principles promoted by Florence Nightingale.
 - 20 “Pure, white, polished, non-absorbent cement is the only material fit for hospital walls.” Florence Nightingale, *Notes on Hospitals*, London, Longman, 1859, 15.
 - 21 Florence Nightingale, *Notes on Nursing: What it is and What it is Not*, London, Harrison, 1859, 20. Douglas Galton would also apply the principles of hospital design to all “dwelling” types, even if “the sick are more easily affected by insanitary conditions than persons in health.” *Observations on the Construction of Healthy Dwellings Namely Houses, Hospitals, Barracks, Asylums, etc.*, Oxford, Clarendon Press, 1880, 164.
 - 22 Edwin Chadwick, *Report on the Sanitary Condition of the Labouring Population of Great Britain*, London, R. Clowes & Sons, 1842.
 - 23 Most of Nightingale’s protocols were already laid out, for example, in the 1854 essay by the surgeon John Robertson that argued that it was well known in the medical community that most hospitals were unhealthy, harming patients rather than curing them, and eloquently captured the thought that the real threat to the human is the human itself: “of all the aerial poisons, none, perhaps, is much more hurtful to man than his own expelled breath, when detained long around him and breathed again.” John Robertson, “On the Defects, with reference to the Plan of Construction and Ventilation, of most of our Hospitals for the reception of the Sick and Wounded” “On the Defective Ventilation of Hospitals,” *Transactions of the Manchester Statistical Society*, 1855-1856, 135.
 - 24 An 1841 book on *The Domestic Management of the Sick-Room* by a prominent doctor, for example, spoke of the “tenacity” with which “infectious matter” adheres to clothes, bedding, furniture, ornament and floors and ornaments. Sick rooms need “smooth and polished surfaces,” no ornament, no unnecessary furniture and constant cleaning of everything in the room and afterwards the furniture needs to be purified and the walls white-washed. Anthony Tood Thomson, *The Domestic Management of the Sick-Room: Necessary, in Aid of Medical Treatment, for the Cure of Diseases*, London, Longman, 1841.
 - 25 In 1802, a society that had been set up in London in 1794 to carry out cleaning of infected working class dwellings was already recommending generalized whitewashing as prevention. “The committee immediately turned their attention, not merely to the relief and restoration of the sick, but to the prevention of the return of the disease by latent and uncorrected infection. A resolution was adopted of gratuitously whitewashing all the houses of the poor.” *The Reports of the Society for Bettering the Condition and Increasing the Comforts of the Poor*, Vol. III, London, W. Bulmer, 1802, 304. The society followed the “Rules of Prevention” published in 1793 by the epidemiological pioneer John Haygarth that called for clean, airy and spacious rooms with protocols of whitewashing and cleansing of body, clothing, linen, floor, furniture, and utensils.
 - 26 Graham Mooney, *Intrusive Interventions: Public Health, Domestic Space, and Infectious Disease Surveillance in England, 1840-1914*, Rochester, Rochester University Press, 2015.
 - 27 The emphasis on proactive prevention over emergency reaction was already in the concept of public health that emerged in late 18th century in France, became an activist movement there in the late 1820s and contributed to the rise of the sanitary reform movement in England that in turn became the model for France. Ann La Berge, *Mission and Method: The Early Nineteenth-Century French Public Health Movement*, Cambridge, Cambridge University, 1992.
 - 28 Much of the arguments about hospitals and homes had been made directly to architects from the beginning. The leading architectural magazine, *The Builder*, devoted itself to the issue ever since Chadwick’s report and Nightingale often directly addressed designers. Anthony King, “Hospital Planning: Revised Thoughts on the Origin of the Pavilion Principle in England,” *Medical History*, Vol. 10, No. 4, 1966, 360-373. Architects were actively involved in the transformation of hospital design since the 1860s into the French pavilion model advocated by Robertson and Nightingale but many of them had already been mobilized in the 1840s by the concept of buildings as preventive care, starting with worker’s housing but gradually applying it to all building types. Model housing projects based on the new concept and strategies of public health were constructed since the early 1840s by philanthropic associations like Metropolitan Association for Improving the Dwellings of the Industrious Classes, and were extensively covered by newspapers and journals and exhibited. A model building of “clean” workers housing with whitewashed smooth walls designed by Henry Roberts was constructed in Hyde Park, for example, during the Great Exhibition of 1851, walls and featured a room full of architectural plans, publications and pamphlets for model hygienic designs.
 - 29 Bruno Latour, *The Pasteurization of France*, trans. by Alan Sheridan and John Law of 1984 book, Cambridge, Harvard University Press, 1993.
 - 30 Otto Wagner, *Modern Architecture: A Guidebook for His Students to This Field of Art*, trans. by Francis Mallgrave of 1896 book, Los Angeles, Getty Research Institute, 1988, 116.
 - 31 Ibid., 113.
 - 32 Ibid., 114.
 - 33 Ibid., 115.
 - 34 Ibid., 104.
 - 35 Leopold Bauer, *Verschiedene Skizzen, Entwürfe und Studien. Ein Beitrag zum Verständnisse unserer modernen Bestrebungen in der Baukunst*, Wien, 1899.
 - 36 Joseph August Lux, the new editor of *Das Interieur*, presented all the arguments for hygienic interiors (ornament as disease, white walls, lack of decoration as the new decoration, all bedrooms treated as sick rooms, cleaning protocols, etc.) in his survey centered on the work of architects based in Vienna. Joseph August Lux, *Die moderne Wohnung und ihre Ausstattung*, Vienna, Vienna Verlag, 1905. Hermann Muthesius noted the fusion of sanitary and aesthetic motives. The sanitation of ornament in favor of functional forms with “a certain clean conciseness of form” and white surfaces was not just a matter of being clean but of representing that cleanliness: “a specific requirement for cleanliness – a demand not only to hinder undesired accumulation of dirt but also to demonstrate symbolically that it is not present, that everything is neat and in the best of order. Our starched white linens also follow the same example. Thus there is a coincidence here of certain sanitary and aesthetic concerns. And the combination of the two appears everywhere in modern designs as we now begin to see, for example, in our dwellings. Here, reforms are taking place – we recognize them most fully in the contemporary English house – that strive to increase the amount of light and air, to design strictly functional rooms, to avoid all useless appendages in the decoration, to eliminate heavy, unmovable household furnishings, and to strive for an overall sense of brightness and impression of cleanliness.” Hermann Muthesius, *Style-Architecture and Building-Art: Transformations of Architecture in the Nineteenth Century and its Present Condition*, trans. by Stanford Anderson of 1902 book, Los Angeles, Getty Research Institute, 1994, 80.
 - 37 Joseph August Lux, the new editor of *Das Interieur*, illustrated much of this work when presenting all the arguments for hygienic interiors (ornament as disease, white walls, lack of decoration as the new decoration, all bedrooms treated as sick rooms, cleaning protocols, etc.) in his survey centered on the work of Josef Hoffmann and his followers in the Wiener Werkstatte, *Die moderne Wohnung und ihre Ausstattung*, Vienna, Vienna Verlag, 1905.
 - 38 “The microbe is to-day one of the most active promoters of genuine household art (...) He is promoter of the general scheme, not positive worker on the detail side; yet without him the best forms of interior finishing would still be but the dream of the too-progressive architect.” Helen Campbell, “Household Art and The Microbe,” *The House Beautiful*, Vol. 6, No. 5, October 1899, 218. “Enter the microbe. Is he a modern invention purely, or has he been with us since creation ended its work and man began his? (...) His real discovery waited the microscope, the biologist, the chemist, the modern physician equipped with forms of leaning and with appliances of healing that would have sent him to the stake three hundred years ago. In the mean time the microbe, unknown and thus in undisputed possession, led a career of phenomenal activity, all civilized life being under absolute if unconscious submission to his dominion, and arranged for his special delight and perpetual reproduction. (...) Where beauty at its highest dwells, he has no place.” Ibid., 219.

- 39 S. Maria Elliott, *Household Bacteriology*, Chicago, American School of Household Economics, 1904. In 1907, *Household Bacteriology* became one of the volumes of the highly influential set on *Home Economics*.
- 40 Henri Sauvage and his partner Charles Sarazin, for example, formed a building society for the production of “hygienic” workers housing in 1901 and worked repeatedly on stepped housing projects with large windows, sun terraces, and all surfaces covered with white ceramic tiles. Caroline Ford, “The Paris Housing Crisis and a Social Revolution in Domestic Architecture on the Eve of the WWI,” *The Journal of Modern History*, No. 90, September 2018, 580–620. See also, Brian Brace Taylor, “Henri Sauvage and Hygienic Housing; or, The Cleanliness Revolution in Paris,” *Architèze*, No. 12, 1974, 13–29. Books by architects on hygiene include: Henry Baudin, *Le Rôle le social de l'hygiène, Société pour l'amélioration du logement*, 1905; Paul Juillerat and Louis Bonnier, *La tuberculose et l'habitation*, Paris, 1905.
- 41 See Fabiola López Durán, *Eugenics in the Garden: Transatlantic Architecture and the Crafting of Modernity*, Austin, University of Texas, 2018.
- 42 Kirsten R. Egan, “Conservation and Cleanliness: Racial and Environmental Purity in Ellen Richards and Charlotte Perkins Gilman,” *Women's Studies Quarterly*, Vol. 39, No. 3/4, Fall/Winter 2011, 77–92.
- 43 “Whitewash is extremely moral. Suppose there were a decree requiring all rooms in Paris to be given a coat of whitewash. I maintain that that would be a police task of real stature and a manifestation of high morality, the sign of a great people.” Le Corbusier, *The Decorative Art of Today*, 192.
- 44 Le Corbusier, *The Radiant City*, trans. by Pamela Knight, Eleanor LeVieux, Derek Coltman of 1964 book, New York, Orion Press, 1967, 41–42.
- 45 Ibid., 43.
- 46 “We need a diagnosis and a line of conduct. In 1922 I tried to delve into an analysis. I did some laboratory work. Isolating my microbe. I watched it develop. The biology of my microbe appeared in indisputable clarity. Certitudes acquired; diagnosis. Then, by an effort of synthesis, I drew up the fundamental principles of modern city planning.” Le Corbusier, *Precisions: On the Present State of Architecture and Urban Planning*, trans. by Edith Schreiber Aujame of 1930 book, Cambridge, MIT, 1991, 143. “It is not enough for a physician to know that a body is attacked by a disease. Even if he is not a bacteriologist, he must push his research into usually invisible realms, he must have a modest knowledge of bacteriology, he must know when the organism was attacked and how the tuberculosis spread. Likewise, the historian cannot dispense with the microscope. He cannot relent in tracing the theme to its origins. He has to show when an idea first appears; how quickly or slowly it spreads or disappears. He cannot confine himself to mechanization alone any more than the doctor can to bacteria. He must take psychic factors into reckoning, for often they exert a decisive influence.” Sigfried Giedion, *Mechanization Takes Command: A Contribution to Anonymous History*, New York, Oxford University Press, 1948, 5.
- 47 Beatriz Colomina and Mark Wigley, “Toilet Architecture: An Essay about the Most Psychosexually Charged Room in a Building,” *Pin-Up*, No. 23, 2017–2018.
- 48 See Mark Wigley, *Buckminster Fuller Inc.: Architecture in the Age of Radio*, Zurich, Lars Muller, 2015, 75–129.
- 49 Charles and Ray Eames, John Entenza, Eero Saarinen and Herbert Matter, “What is a House?,” *Arts & Architecture*, July 1944, 32–49. The article was referring to the “Precipitron” and “Sterilamp” devices for removing bacteria from air and surfaces that were manufactured by Westinghouse since the late 1930's and advertised for use in homes in architectural journals during the war.
- 50 A. J. McMichael, “Environmental and Social Influences on Emerging Infectious Diseases: Past, Present and Future,” *Philosophical Transactions: Biological Sciences*, Vol. 359, No. 1447, 29 July 2004, 1049–1058.
- 51 Israel Hershkovitz, Helen D. Donoghue, David E. Minnikin, Gurdayal S. Besra, Oona Y.-C. Lee, Angela M. Gernaey, Ehud Galili, Vered Eshed, Charles L. Greenblatt, Eshetu Lemma, Gila Kahila Bar-Gal, Mark Spigelman, “Detection and Molecular Characterization of 9000-Year-Old Mycobacterium tuberculosis from a Neolithic Settlement in the Eastern Mediterranean,” *PLoS one*, October 2008, Vol. 3, No. 10, 1–6.
- 52 The “hygiene hypothesis” hinted by late 19th century scientists but first formulated in 1989 is increasingly being confirmed in epidemiological studies and therapeutic trials. Graham Rook and colleagues significantly revised the hygiene hypothesis in 2003 with the concept of “Old Friends,” the micro-organisms that co-evolved with humans in the development of the immune system in the hunter-gatherer phase before the first settlements – again effectively portraying the beginning of architecture as ultimately unhealthy for its inhabitants and industrialization urbanization as having accelerated this. Graham A. W. Rook, “Hygiene Hypothesis and Autoimmune Diseases,” *Clinical Reviews of Allergies and Immunology*, No. 42, 2011, 5–14. Hygiene per se is not the issue. After all, there is no such thing as a sterile environment. Even the cleanest house is teaming with microbes. The issue is which microbes are lived with. As summarized by a major research review: “The problem is not one of being too clean: it's one of reduced contact with the right kind of dirt.” Rosalind Stanwell Smith, Sally F. Bloomfield and Graham A. Rook, “The Hygiene Hypothesis and its Implications for Home Hygiene, Lifestyle and Public Health,” *International Scientific Forum on Home Hygiene*, 2012.
- 53 Fredrik Backhed, et.al., “Dynamics and Stabilization of the Human Gut Microbiome during the First Year of Life,” *Cell Host & Microbe*, 17, 13 May 2015, 690–703.
- 54 Brandon Brooks, et.al., “Strain-resolved analysis of hospital rooms and infants reveals overlap between the human and room microbiome,” *Nature Communications*, 1814, 2017.
- 55 Caitlin V. Hall et.al., “Co-existence of Network Architectures Supporting the Human Gut Microbiome,” *iScience* 22, 20 December 2019, 380–391.
- 56 Penelope Ironstone, “Me, My Self, and the Multitude: Microbiopolitics of the Human Microbiome,” *European Journal of Social Theory*, Vol. 22, No. 3, 2019, 325–341.

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Beatriz Colomina

Architectural historian and theorist, Howard Crosby Butler Professor of the History of Architecture and Founding Director of the Media and Modernity program at Princeton University. Her books include *Sexuality and Space* (Princeton Architectural Press, 1992); *Privacy and Publicity: Modern Architecture as Mass Media* (MIT, 1994); *Domesticity at War* (ACTAR and MIT, 2006); *Clip/Stamp/Fold: The Radical Architecture of Little Magazines with Craig Buckley* (ACTAR, 2010); *Are We Human? Notes on an Archeology of Design* with Mark Wigley (Lars Müller, 2016) and *X-Ray Architecture* (Lars Müller 2019).

Mark Wigley

Architectural historian and theorist, Professor Columbia GSAPP. His books include: *White Walls, Designer Dresses: The Fashioning of Modern Architecture* (MIT Press, 1995); *Constant's New Babylon: The Hyper-Architecture of Desire* (OIO Publishers, 1998); *Buckminster Fuller Inc.: Architecture in the Age of Radio* (Lars Muller Publishers, 2015); *Are We Human? Notes on an Archaeology of Design* with Beatriz Colomina (Lars Müller, 2016); *Cutting Matta-Clark: The Anarchitecture Investigation* (Lars Müller, 2018); and *Passing Through Architecture: The 10 Years of Gordon Matta-Clark* (Power Station of Art, 2019).



Cité Napoléon, 58 rue de Rochechouart, Paris (IX), 1849-1853, view of the top-lit galleries. © Photograph by G. Teyssot.

The *Ur*-Forms of Modernism. On 19th Century Hospitalized and Hygienic Dimensions of Architecture¹

BY GEORGES TEYSSOT

During the 19th century, a shift in the meaning of the notion of type took place, accompanied by the idea of an explicit inscription of habits and needs in space. A new correlation between the architectural type and the habitual was established. If only tentatively, esthetics and planning could now be harmoniously reunited through the introduction of new habits in order to generate a collective way of living. As a result, the object of architecture became to moralize and to reform. The “dream” of this period was that of a purely technological solution for civil building and housing. It would further expand into the vision of the exact partitioning of living space, and of the invention of perfect machines for healing, controlling, and living. In fact, two genealogies began to merge: total sanitarianism, which led to the exact quantification of fluids piped into buildings; and total technology, which aimed, through the use of new materials, at the precise programming and optimization of space. Underlying the thousands of proposals in the 19th century, the idea of the circulation of goods and people was crucial, and dependent on the imperatives of mobility and decentralization. Traces of such “dream architecture” remained in the form of the features that would become an intrinsic part of 20th century, modern architecture.

In an article entitled “On Monumental Domestic Architecture” published in his journal the *Revue générale de l'architecture et des travaux publics*, architect and journalist César Daly (1811-1893) positioned himself as a social observer who wanted to increase society's general welfare.² This was not surprising since the founder of the *Revue générale* was a close friend of the philosopher and economist Victor Considérant (1808-1893), and both were enthusiastic followers of Charles Fourier (1772-1837), the inventor of the “phalanstery.” Made up of a small group of workers associated with a kind of co-operative, the aim of Fourier's phalanstery was to ensure universal harmony in his utopian society. Many of Daly's articles were republished in *La Phalange*, which was directed by Considérant, who published his own *Principles of Socialism* in 1847.³

Domestic Monuments

Having observed in the aforementioned article that “older housing no longer responds to our needs,” Daly divided the problem into two distinct issues: plan and esthetics.⁴ New housing plans should conform to minimum requirements in terms of the number and function of the rooms:

We have today many people of small means ... who require appropriate apartments, and each apartment must necessarily be made up of a minimum number of rooms of a determined nature, since this inevitably results from internal domestic needs, needs that are always the same and that vary only in their order of magnitude.

Daly thus recognized “how much distribution and the thousands of small, essential pieces of equipment (are necessary) in today's *intérieurs* [interiors].” While, according to Daly, the architect of the 19th century had surpassed his predecessors, through a focus on planning (“those of small means, above all, who are among the most difficult to house comfortably, have never been better off than now,”⁵ he wrote), the esthetic solution to the problem of distribution was disastrous.

Glancing down the street one could see only the basic French *maisons à loyer* [rental houses] which made no concessions to esthetics, causing Daly to declare that

the facades of our modern houses rise from each side of the street, with two vertical and parallel surfaces, offering neither projections nor recessions, no shadowed or light surfaces, no play of line of any sort.

These rental houses were, Daly wrote, “destined to satisfy a group of needs common to all families,” and as a result, “[t]hese houses are so many tracings of a common type.”⁶ For Daly, if the public had not thus far protested against their monotony, it was merely because they were “nearly insensible to the ugly or the beautiful in architecture.” In Daly's writing, there was a shift in meaning: he associated the etymological origin of “type” (in Greek, *typos*), in the sense of the stamping of typographical characters, with the idea of an explicit inscription of habits and needs on space,

establishing a new correlation between the architectural type and the habitual.

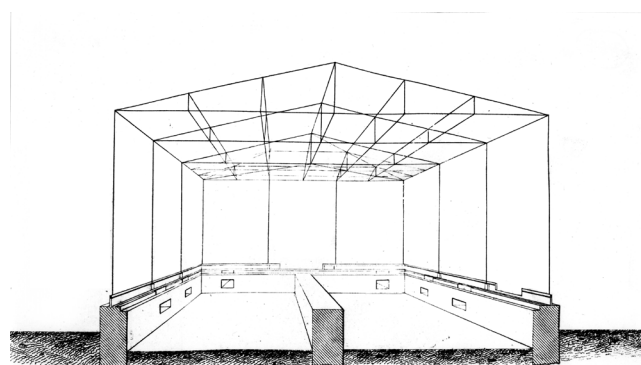
Not surprisingly, Daly criticized the repetitive and automatic drawing up of an architectural plan that consisted of “the enumeration of various needs which constitute a program.” Worse still, he felt, there must be something in the very nature of certain programs that “kills” every attempt made by the artist to give “a beautiful general character” to the building. But since the form of the house resulted from the combination of “habits” and “needs,” causes which were outside the architect’s sphere of influence, it must be the case that “our domestic architecture results from our manner of living.” Therefore, “to alter the effect, we must begin by altering the cause,” but not merely by some abstract esthetic embellishment applied to the *façade*.⁷ For Daly, only the transformation of the “program” could lead to the solution of this formal, or esthetic problem. To such an issue, as a response, Daly provided a theoretical definition for the conditions required to develop a “monumental domestic architecture”:

*every time a program contains an exposition of varied and complex needs which must result from the bringing together of a large number of persons, the architectural resolution of such a problem must always lead to a beautiful character for the ensemble combined with great variety in the forms; moreover, though contained within certain limits, the variety, harmony and beauty of a building of this sort will increase geometrically with the number of individuals who must inhabit it, and with the complexity, number, and variety of their needs.*⁸

Fundamental to an esthetic for the housing of large numbers was the concept of the “warehousing” of people and things, an effect gained by the repetition of simple elements, and a variety obtained by “regular combinations.” It was not the luxuriousness of detail that counted, but the “beautiful character” of the ensemble, which was to be the product of simple procedures, procedures that were “naïve” or ingenuous, to borrow Daly’s own term. Revealing his Fourierist background, he claimed that the formal “lies” disguising the fragmentation of private architecture were only acceptable until society reached the moment when “previous habits of life” were transformed. “Esthetics” and “plan” would be reunited in harmony with each other, once new “habits of life” were initiated, creating a collective way of living. In this way, Daly proposed an architectural collectivism. With Augustus Welby Northmore Pugin’s (1812-1852) Catholic medievalism in England and Victor Considérant’s and César Daly’s socialist Fourierism in France, architectural theory took a step towards new moralizing objectives. Instead of a servile response to existing needs, inscribed in ordered space, the intention of the architect became the transformation of the “habits” of future users themselves. In the 18th century, architecture was to “speak” and act on perception through its *form*, while in the 19th century architecture was instead to “moralize” and to *reform*.

Transparent and mobile

In the long history of literature on how to build houses, Daly’s texts remain innovative because they went beyond the strictly sanitary or hygienic considerations, such as the architect Charles Rohault de Fleury’s (1801-1875) report read before the Central Health Commission of the Department of the Seine in 1832,⁹ or Léon Vaudoier’s (1803-1872) 1844 text on the effects of humidity in housing.¹⁰ “Hospitalized” and hygienic dimensions of the problem were not neglected in Daly’s *Revue générale*, but it was thought that hygienic-medical disciplines should be utilized to provide quantitative and empirical data for an entirely “modern” project of transforming the built environment. For example, in 1844, the magazine published René Duvoir’s system for heating and ventilating hospital rooms.¹¹ This system reduced the problem to one of measurable functional criteria, supplying data for the calculation of the minimum quantity of pure air required per person, which was found to be 20 cubic meters per bed per hour. A second example is the article concerning a “hospital in iron, built in Camp Jacob, Island of Guadeloupe” by the engineer and architect A. Romand.¹² He was charged with rebuilding the military hospital after an earthquake in 1843. Each separate hospital pavilion was transported to the island by boat and erected in two months, allowing it to be dedicated on May 1, 1846. The framework was made of wrought iron structural members anchored in a concrete base, and the exterior was clad in plates of cast iron bolted to the structure, while a covering plate masked the assemblage. The frames of doors and windows were of cast iron and the interior was covered with a layer of wood that allowed air to circulate in the space between the inner and outer surfaces of the walls. It was not the first time that a prefabricated building had been devised. As early as 1840, Daly had published in the first issue of the *Revue générale* a prefabricated building invented in 1820 by Colonel Fredrik Blom (1781-1853), a Swedish architect, for the purpose of acting as lodgings on industrial sites or cabins in tourist resorts.¹³



01 A. Romand, Iron built Military Hospital at Camp Jacob on the island Guadeloupe, 1846, framework. © *Revue Générale de l'Architecture*, Vol. VII, 1847, Pl. 4.

Nor was it the first time that a purely technological solution had been proposed for a civil building. Jeremy Bentham (1748-1832) had intended the use of iron and glass for his notorious Panopticon of 1791. With its central-plan device facilitating surveillance in hospitals, schools, prisons, factories, and so on, the panopticon would have allowed him to realize his dream of a transparent, disciplining, and imprisoning architecture.¹⁴ Another celebrated example is the colossal, prefabricated hospital complex, shipped from England and erected at Renkioi in Turkey, during the Crimean War, in 1855-1856, designed by Isambard Kingdom Brunel (1806-1859).¹⁵ These examples reveal a striking affiliation between the panopticon and all the social projects of the 19th century, such as “phalansteries,” “familisteries,” “aerodomes,” and so on; all were seemingly “utopian,” and all were precisely organized toward what was understood as a comfort, not so much of the individual, but of the “dividual,” to use Gilles Deleuze’s (1925-1995) and Félix Guattari’s (1930-1992) concept. It was a collective notion of habitation, organized around a centralized management and the regulation of fluxes. It also evoked the dream of the exact partitioning of living space, and of the invention of perfect machines for healing, controlling, and living. In fact, it seems clear that two genealogies were becoming intertwined around 1840: total sanitarianess, which led to the exact quantification of fluids piped into buildings; and total technology, which pointed, through its use of new materials, to the precise programming and optimization of space.

Two paradigmatic cases can be used to illustrate the destiny of these two genealogies, which were to coexist in France in the second half of the 19th century. The first is the description of a project for the *Purification of Large Cities* by Country Air published in Lyon in 1884.¹⁶ The anonymous author proposed the erection of an apparatus to pipe air “into churches, offices [and] dormitories of boarding houses, schools and colleges.” According to the inventor, “the mechanical installation must include: an air intake device in the open countryside, numerous pipes to carry the air to the gates of the city, where a steam engine with powerful ventilators would have to be installed.” It is worth citing his description of the installation of the air intake device, because of its surrealistic overtones: “The field will be surrounded by walls. Around every opening firs and other balsamic essences will rise up, planted to filter the air and eliminate dust; flowers and odoriferous plants will also be cultivated. A gardener will act as custodian of the entries and will see to the orderly maintenance of the plantings.”¹⁷ In this proposal, “distribution pipes” were to be laid out, snaking along the sides of drains and connecting to smaller iron or tin pipes which would run along the cornices of the rooms of the building to be ventilated, emitting “atmospheric gas” from numerous holes. Moreover, special apparatuses would allow the air to be chilled during the summer and heated during the winter.

However unrealistic, this project was proposing the irrigation of the urban complex with “fluids,” thereby reinforcing ventilation as the primary condition for the establishment of domestic comfort. In 1844, Daly, in addition

to presenting his views on the planning of housing, had already signaled the importance of careful management of the flow of air, heat, and light. He thought the architect now needed to satisfy a new requirement, the adjustment of architectural form to the logic of the circulation of such fluids. “The building leaving the architect’s hands,” he warned,

*is most often a being as yet without life; it is a superb cadaver without breathing apparatus; it is deficient in the circulation of pure air necessary to the nourishment of those who live there and in the means of evacuating foul air, which it is important to organize the evacuation of as soon as it is created.*¹⁸

According to Daly, what was definitively lacking in the “superb cadaver” of neoclassical architecture was life itself, and, accordingly, only a “bio-politics” of architecture would be able to carry the house to the new shores of modernity.

The paradigm of total technology would be demonstrated in the *Revue générale* a few years later: “One could calculate,” wrote the Belgian Jean-Baptiste Marcellin Jobard (1792-1861) (a regular contributor to Daly’s periodical) in an article on “Metallurgic Architecture” in 1849, “that the thickness of the walls of houses in a town occupies an eighth of the habitable surface; houses of iron would occupy only one twentieth and would provide protection against fire, collapse, lightning and earthquakes, all the while costing less to erect.”¹⁹ In his *Building in France, Building in Iron, Building in Ferro-Concrete* (1928),²⁰ Sigfried Giedion (1888-1968) quoted an article by this same author, “Architecture of the Future” [“Architecture de l’avenir”], also published in 1849:

*Because glass is called upon to play a substantial role in iron and steel architecture in place of those thick walls pierced by large openings which thereby diminish the solidity and the security [of the building], our houses will be dotted with elegant and numerous openings which will make them completely permeated by light. These many-shaped openings, filled with thick glass, single or double, translucent or frosted, clear or colored as desired, will have a magical effect on the interior by day and on the exterior by night by the play of lights.*²¹

Walter Benjamin (1892-1940) noted, in “Paris, Capital of the Nineteenth Century”, that the use of iron and glass was spurned in dwellings. Such materials were mainly used in arcades, covered markets, pavilions for expositions, and train stations – in other words, in “buildings which served transitory purposes.”²² Two contrasting modes of subjectivity thus began to insinuate themselves into the world of things. On the one hand, was the “transitoriness” that determined one sort of man as mobile and nomadic; on the other hand, was the old individualism of the “inhabitant” who defended his traditional “permanence” or “al-location.” As Charles Baudelaire (1821-1867) observed, “individuality – this little propriety – has eaten up the collective originality...”²³ But the metallic elements brought into the domestic environment remained hidden within the walls.

Even if it were possible to show a widespread use of iron in domestic construction, it was not coupled with glass in the same way. In themselves, iron and glass were not a problem; it was their incapacity to avert the gaze that was a cause for concern. Civilization itself has always tended to check any movement toward complete transparency in domestic spaces. The architect Adolphe Lance (1813-1874), in his 1850 report on the hygienic cleaning of unhealthy dwellings to the Société Centrale des Architectes,²⁴ underlined this difficulty: “To invade, even with the most excellent intentions, the domicile of a citizen, to insinuate oneself into his private life, to prescribe to him rules of conduct in the sphere of his domestic actions, in a place where he is the one and only absolute judge, all this seems at first glance an effort as vain as it is indiscreet.”²⁵

Technology nevertheless imposed its order – an order that could only endorse transparency, even if it was not literally carried out. Instead of being literal, transparency was imposed on relationships between people and things. The house was not reducible to a mono-functional and mono-cultural device.

House, a machine

Nonetheless, for the entire second half of the 19th century, and up to the time of the slogans of the so-called “Modern Movement” in architecture, the tendency remained precisely that of reducing the dwelling to a mere mechanism. It was Adolphe Lance who, in 1853, proposed the idea of a “machine for living” for the first time:

*Would it not be possible to go further and also design our buildings or our houses in their relationship to the man who frequents them or lives in them, not only to determine their general disposition and distribution, but to also discover the thousands of special applications, multiple assistances, and economies of time and energy, which the introduction of the results of the progress of science and of industry into our dwellings could provide for domestic life? A house is an instrument, it is a machine, so to speak, which not only serves as shelter to man, but must, as much as is possible, submit to all his needs according to his actions and multiply the results of his work. Industrial buildings, factories, plants of all sorts are in this respect nearly perfect models and worthy of imitation.*²⁶

The resistance of 19th century reformers to the practical consequences of transparency (which had become universally dominant in the commerce between things and people in this period), was allied to the bourgeois resistance to technology. Despite the mechanization of services and the new functional allocation of space, “comfort” became the axiom of architectural theory, at least until the dramatic and widely publicized revival of the theme of the “machine for living,” espoused by Le Corbusier (1887-1965) in *L’Esprit nouveau* in 1921 (which, in any case, simply reorganized the same issues surrounding the question of comfort). There was a substantial continuity of objectives in the formation of the disciplinary body of architecture, from the first hygienic and technological discourses of the 1830s to their

recapitulation in prescriptive and totalizing form in the *Congrès International d’Architecture Moderne’s Athens Charter* of 1933. At the center of this continuity in the politics of comfort, however, the problematic question of “style” remained, a question that could not be resolved by a simple dialectics. It was Daly, once again, who, in his book *Private Architecture of the Nineteenth Century under Napoleon III* (*L’architecture privée au XIX^e siècle sous Napoléon III*, 1864) noted that: “the house demands comfortableness, a quality that is not always reconcilable with that which characterizes a work of style.”²⁷

Penal Colony

In 1845-1846, Daly published a range of architectural models for collective housing in his journal. These included the house-dormitory concept by the English architect Sydney Smirke (1797-1877), designed for Sir Edwin Chadwick (1800-1890), an influential member of the British Royal Parliamentary Commission into the Operations of the Poor Laws (1834); plans for workers’ housing taken from the pattern book of the English architect Charles Pierce, who was inspired by the collective houses of Henry Roberts (1803-1876), such as the Men’s Model Lodging House on St. George Street; and projects for neighborhoods and model dwellings for Brussels, conceived by the prison reformer and criminologist Édouard Ducpétiaux (1804-1868), and designed by the architects Jean-Pierre Cluysenaar (1811-1880) and (Jacques Louis) Charles Spaak (1804-1893).²⁸ Like many of his fellow reformers, Ducpétiaux, a keen opponent of the death penalty, would come to be criticized for the “too restrictive and disciplinary nature” of his proposals.²⁹ The plates taken from Ducpétiaux’s publication, in particular, reproduced construction and structural details which, figuratively at least, closely resembled those of treatises on model prisons: “window, chimney, ventilation system, latrine, alcove, private drain, primary and secondary drain, models for public urinals, etc.” The danger here was that, instead of new workers’ housing, what would actually be built would be new workhouses, more hotels for indigents, or houses for convicts. The specter of the penal colony hovered over these pages.³⁰

The question, then, became one of the choice of model – colony, barracks, or “workers’ club.” Substantial documentation of this debate remains. The “Customs Barracks” [*Caserne des Douanes*] of Le Havre is an often-cited example of the many projects that resulted. Seen as a perfect example of a workers’ *Cité*, and a project of “social” architecture,³¹ it was built in 1847 by the municipal architect Louis-Fortuné Brunet-Debaines (1801-1862). Descriptions that survive suggest an immense complex three stories high with five courtyards which, in 1850, housed more than 2,000 inhabitants. Kitchens, dining halls, nurseries, schools, dormitories for the unmarried, private quarters for families, a medical dispensary, gas lighting, and a cleaning service for public spaces were all provided. These expanded services were financed by a deduction of 12 percent from the salaries of employees. “Such an establishment certainly seems most appropriate as the resolution of the problem of workers’

Cités,” asserted a doctor in 1858:

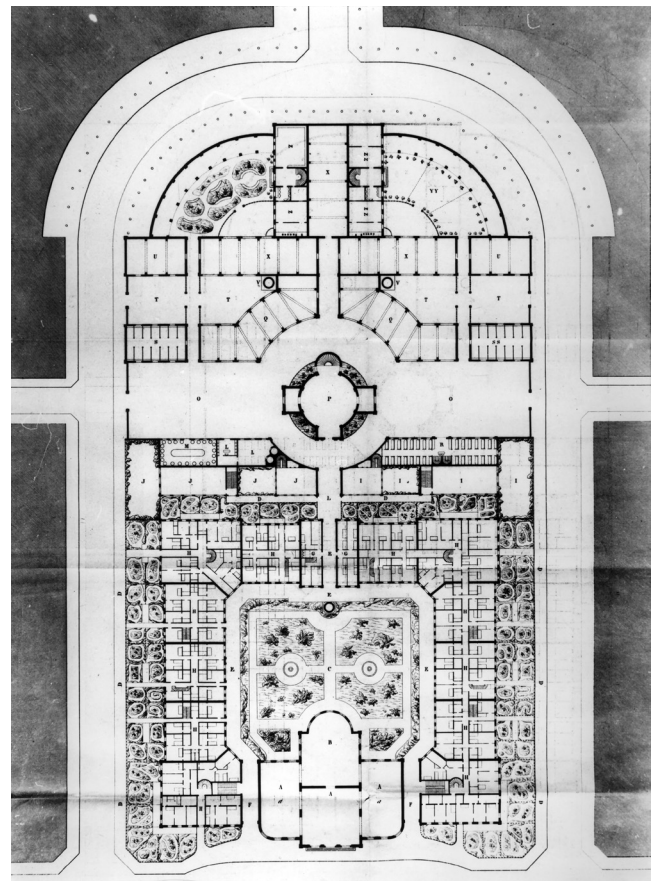
and, further, constitutes a model since it contains in itself all the conditions that we must insist be found there. There, every individual finds security, health, individual freedom, education, economy in domestic life. Most assuredly, one enjoys all the advantages of common life without suffering its inconveniences. The surveillance and discipline exercised are certainly less perceptible than the actions of the police in workers' lodgings in town... The workers' Cité is one of the most efficacious means of making the working classes moral.³²

In this way, the program, construction, and commentary associated with the “Customs Barracks” of Le Havre may be seen as the culmination, and summation, of approximately 150 years of building and urban politics.

While Daly was initially supportive of the scheme, he later voiced criticisms of it in his review of the *Salon de Paris* of 1849, where it was exhibited. Stating that “we have been assured that the success has not been complete,” he took it upon himself to describe in the following pages various projects for colonies as a response. One example was a certain Monsieur Bourla’s *Project for a Civil or Military – Agricultural – Penitentiary – Industrial Colony*. This was a settlement of 1,200 colonists in Algeria. Composed of splendid, though austere barracks with a central corridor arranged around a square courtyard, the project followed the tradition of French military architecture of the 17th and 18th centuries, such as that of Sébastien Vauban (1633-1707), Bernard Bélidor (1698-1761), and the engineers of the Ponts et Chaussées. Following his discussion, Daly added: “We ourselves have drawn up a project for a series of African colonies during the time of the ministry of Général Bernard in 1835 for the *Society for the Colonization of Africa* which had at that time 50 million in capital.”³³

Communal Palaces

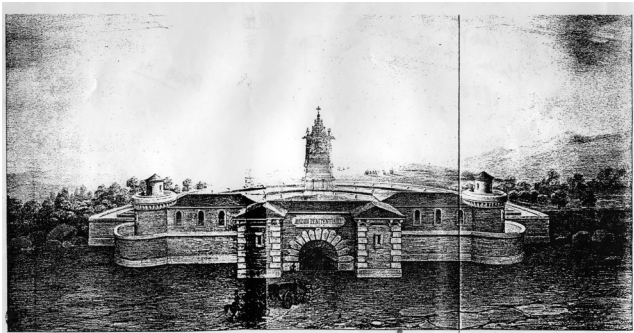
In the collectivist proposal, whether put forward by conservatives or proto-communists, there is always an interesting blend that fuses proposals for a new urbanism, together with design inventions and technological applications. This interesting crossbreeding can be found, for example, in the socialist proposals of Robert Owen (1771-1858), the Scottish social reformer and cotton manufacturer, founder of New Lanark and New Harmony in Indiana in 1824; in Charles Fourier’s theory of the phalanx, as a unit of society based on passion and mutual attraction, inhabiting single buildings called phalansteries; in Théodore Dézamy’s (1808-1850) volume on *The Code of the Community* (*Code de la Communauté*, 1842), which proposed a communal palace of 1,000 inhabitants; in Étienne Cabet’s society of the Icarians, described in his *Voyage en Icarie* (1840-1842); and in Victor Considérant’s application of Fourierism. An engineer from the École Polytechnique, the latter was the author of *Social Destiny* (*Destinée Sociale*, 1834), who had devised a phalanstery fully serviced with central heating and kitchens, and equipped with forced ventilation and plumbing. It was Considérant who wrote the most



02 Théodore Charpentier, Design for a “Cité of the Union,” November 1849, plan. © Claude-Marie (called Henri) Dometh, *Mémoire sur la fondation de cités industrielles, dites cités de l’union* (Paris: Impr. de Schneider, 1849).

interesting book on architecture of this period, *A Description of the Phalanstery* (*Description du phalanstère et considérations sociales sur l’architecture*, Paris, 2nd edition 1848). Having first dismissed Victor Hugo’s (1802-1885) prophecy about the death of architecture (“the book would kill the building”), Considérant thought that the abode of humanity should be palatial, the people having a Versailles of their own, but one fully equipped with all the devices modern technology could offer. In this palace, everything is “planned, thought of, organized and combined ... like a sovereign, mankind governs water, air, heat and light.” But for Considérant it was only in North America that Fourier’s grandiose project was destined to be realized.³⁴ All the proposals summarized above were productive and autonomous installations to be established as new colonies. Most were doomed to failure. Financial problems and mismanagement plagued many of the attempts, such as Cabet’s Icarian settlements in Texas and Illinois. Despite such shortcomings, some of the disciples of utopian prophet Claude-Henri de Saint-Simon (1760-1825) would continue to invoke the benefits of colonization, providing, paradoxically, a theory of colonization derived from socialist writers. Yet the issue of colony was never a simple matter, since throughout the century opinion fluctuated among different political circles and various individuals.³⁵

Such forms of settlement provided models for housing reform that could be applied to the poor, but it also

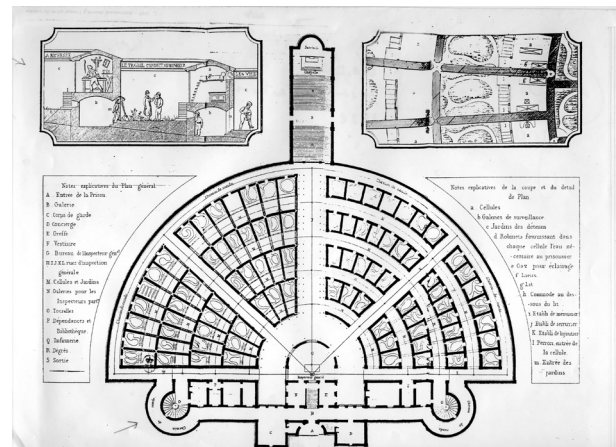


03 Théodore Charpentier, Project for a Panopticon, 1838, perspective view.
© Théodore Charpentier, *Projet de maison pénitentiaire*
(Paris: Impr. de Fermin Didot frères, 1838), no paging.

prefigured what the 20th century would call “minimal living,” or *Existenz-Minimum*. It also paralleled the foundation of industrial cities, in which a new architectural clothing for the collective house was proposed. One example is the proposal for a “*Cité de l’Union*” by journalist Henri Dameth (1812-1884) published in November 1849. Dameth, a member of the Fourierist *École Sociétaire*, was one of numerous Catholic socialists who practiced “*mutualisme*,” solidarity and societarism.³⁶ His never-built *Cité*, to have been founded by a society of shareholders, was sited on the outskirts of Paris and promoted as “a microcosm of all human society.”³⁷ The prospectus announced that it would contain:

healthy, comfortable, economic accommodations, a certain optional level of association; a center of consumption and production which functions on the principle of the exchange of products, similar to Robert Owen’s system of exchange and barter; a communal bank which extends credit to everyone; a complete “institution” of popular education: nurseries, schools, old age homes, etc.

By good fortune Dameth encountered a capable architect in the person of Théodore Charpentier (1797-1867). Although little noticed, Charpentier was a prolific professional. For eight years the architect of the city of Odessa on the Black Sea, he was also the builder of several theaters in the French provinces and a successful stage designer in Paris. A “romantic” artist, he designed châteaux in “Medieval” and “Renaissance” styles.³⁸ In 1832, he was involved in various proposals to remedy the effects of the cholera epidemic that had struck the capital.³⁹ In 1838, he published a project for a panopticon prison where each prisoner occupied a cell composed of a small room facing a little garden “where he could grow some flowers if he wished.”⁴⁰ The shared cells, composed of a small room for a workshop and another living room, were arranged in a large amphitheater under the gaze of the centrally-located guard. Selected for the reconstruction of the theater at Le Havre in 1844, Charpentier collaborated with the municipal architect Louis-Fortuné Brunet-Debaines, the designer of the Customs Barracks which we have already discussed. With



04 Théodore Charpentier, Project for a Panopticon, 1838, plan and section.
© Théodore Charpentier, *Projet de maison pénitentiaire*
(Paris: Impr. de Fermin Didot frères, 1838), no paging.

the *Cité de l’Union* skillfully designed by Charpentier, for the first time in France plans for an architectural proposal for collective housing were drawn up that exceeded a mere list of requirements and social or political claims. In the lower portion of the plan, 13 “dwelling buildings,” each of five floors, were proposed to be grouped around the three sides of a square garden about 55 meters long. On the fourth side abutting the street was the “*Bazaar*” building, with restaurants, cafés, taverns, reading rooms, a library, and community rooms, while circulation was along covered galleries. The housing to the left was divided into apartments of two to four rooms, while the housing on the right was composed of an extremely long central corridor, providing access to a series of apartments with two rooms. The architectural resolution of the problem of the inside corners of the court was particularly noteworthy. The 13th house was to function as a furnished hotel, while collective services such as baths, nurseries, kindergartens, a bakery, a laundry, etc. were located at the center of the complex. In the upper portion, the production center included barns, stables, steam engines, and communal offices. The composition was completed by the school building, placed at the top of the plan, on axis.

Between 1849 and 1851, the first large *Cité* financed by the state was built, the *Cité Napoléon*, still extant on the Rue de Rochechouart in Paris, designed by architect Marie-Gabriel Veugny (1785-1856) and sponsored by the Prince-President of the Second Republic, Louis-Napoleon Bonaparte (1808-1873) (soon to become Napoleon III). In the interior of the main building facing the street is a large gallery: a complete system of cavernous passages and vestibules stacked on top of each other, tied together by stairs and top lit with a large glazed lantern. This internal gallery, a kind of multi-floored arcade, filters a light, similar to that of an aquarium or a greenhouse for tropical plants, onto the windows of the apartments lining it. It provides a large communal space for circulation between floors, connecting the private rooms, offering places for encounters, children’s games, and old people’s gossip. Other more traditional “pavilions” were located in the rear of the residential complex, made up of apartments along either side of a narrow, dark corridor.

The “Orgy” of Socialism

The social largesse of the Prince-President Louis-Napoléon in providing such a place was much discussed. In the press, liberal and conservative views were opposed. The former, such as lawyer Alphonse Grün (1801-1866), editor in chief of *Le moniteur universel*, promoted state intervention;⁴¹ the latter, including Amédée Hennequin (1817-1859) publishing in the religious journal *Le Correspondant*, defended “domestic freedom” and companies of private individuals that opposed the coercive prescriptions of the state.⁴² So, for a Fourierist like Victor Meunier (1817-1903), author of scientific articles for Republican (i.e. progressive) newspapers during the 1848 revolution and the Second Empire, the *Cité Napoléon* was to be welcomed as a “heated greenhouse for the flowering of socialist seeds,”⁴³ while for a conservative like Dr. Louis René Villermé (1782-1863), a famous hygienist, they could not “but excite socialist folly” among young workers, resulting in an “economy ... transformed into an orgy.”⁴⁴ For Villermé, the plan of the *Cité* on the Rue de Rochecouart prevented the autonomy of the family: nothing was done to “obstruct communication” or “prohibit conversation.” He added with pessimistic realism: “one knows that such idle chatter distracts the neighbors from the care of the house, creating disorder, argument, hostility and habitual laziness.”⁴⁵ Among the other dangers he denounced were promiscuity – single workers could “spy, waiting for the opportunity to weaken the moral principles of young women”⁴⁶ – and the threat of political sedition (the slogans of 1848 remained in the minds of all): “Must it not be feared that the *Cités*, which hold between their great walls large numbers of workers, isolate them even more from society in general, and thereby reinforce jealousy against those we call the rich to whom they attribute imaginary wrongs?”⁴⁷ The reformer’s objectives seemed to be highly contradictory: on the one hand, the house was opened to the four winds for hygienic reasons, making the dwelling transparent to light and to the gaze; but on the other, communication was intercepted and visibility obstructed in order to counter political and moral contagion.

Dream architecture

In a passage significantly cited in Benjamin’s *Arcades Project*, Sigfried Giedion (1888-1968) perceptively noted in *Building in France, Building in Iron, Building in Ferro-Concrete*:

*The nineteenth century: singular fusion of individualistic and collectivist tendencies. Unlike virtually every previous age, it labels all actions “individualistic” (ego, nation, art), while subterranely, in despised everyday domain, it necessarily furnishes, as in a delirium, the elements for a collective formation ... with this raw material, we must occupy ourselves: with gray buildings, market halls, department stores, exhibitions.*⁴⁸

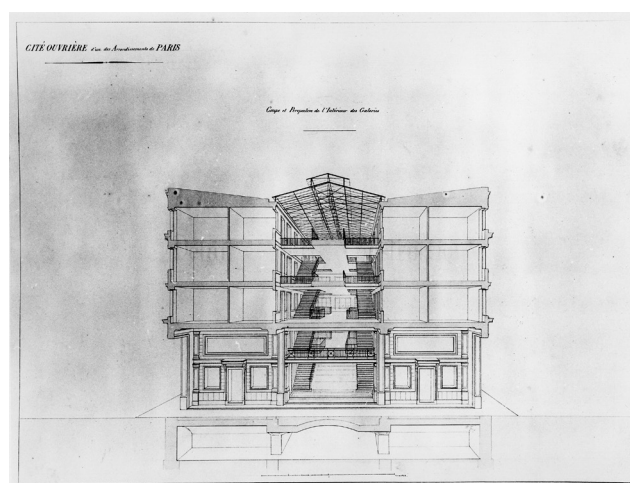
The “delirium” alluded to by Giedion was translated into “dream” by Benjamin: “It is not only that the forms of appearance taken by the collective dream in the 19th century cannot be thought away,” he wrote, “and not only that these forms characterize this collective much more

decisively than any other, – they are also, rightly interpreted, of the highest practical import, for they allow us to recognize the sea on which we navigate and the shores from which we push off.”⁴⁹ In this sense, it was, characteristic of the new technological organicism typical not only of various “utopias,” both realized and unrealized, but also of glazed buildings such as the “familistery” at Guise (Aisne) built from 1858.⁵⁰ This project, which had been designed by Jean-Baptiste Godin (1817-1888), an industrialist inspired by Fourier and by Victor Calland (1806-1865) and Étienne Lenoir (1822-1900), created three sets of buildings around a totally glazed court, with staircases and services in the corners, and passageways distributing the apartments on each floor. Another such example is the less well-known *Cité Napoléon* at Lille, promoted by the lawyer Aimé Houzé de l’Aulnoit (1822-1899), an ensemble of large pavilions with central corridors designed and built by the architect Émile Vandenberghe (1827-1909) in 1860, housing between 900 and 1,000 “poor”. In this design an original planning solution allowed “beneficiaries” to divide with partitions the 4x4 meters space assigned to each family as they wished.⁵¹

The multiplication of “utopias” for collective residences, whether social or technological, provoked a certain irritation, as the character Sénécal in Gustave Flaubert’s *Sentimental Education* can attest:

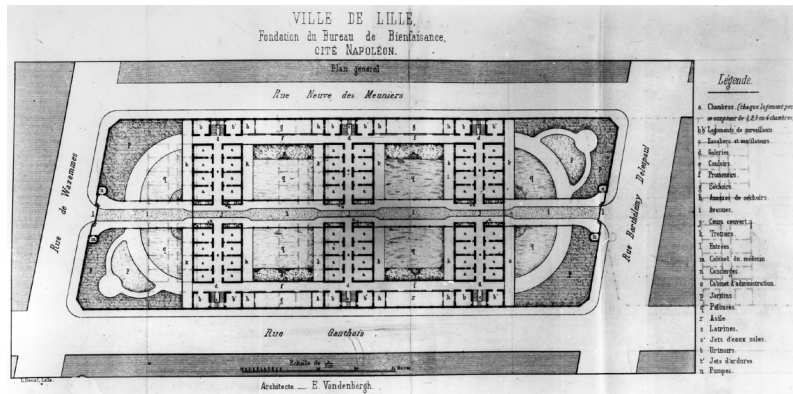
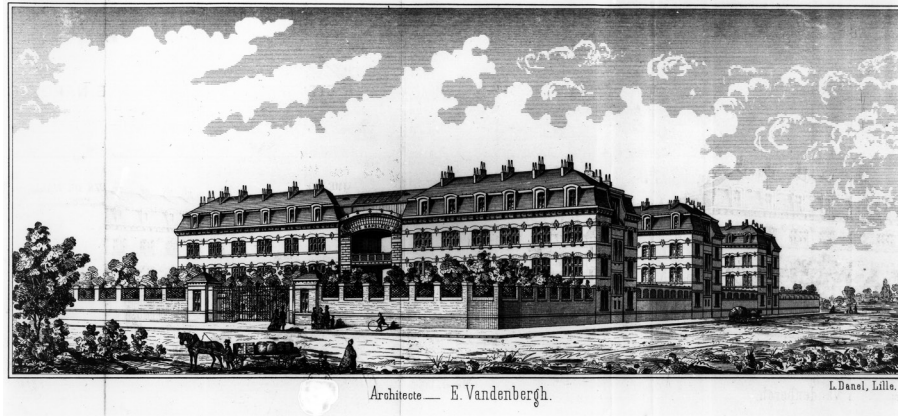
*He knew ... the entire cartload of socialist writers – those who demanded a life of barracks-like conformity for all mankind, those who wanted to entertain it in a brothel or chain it to a work-bench – and, from a blend of all these theories, he had evolved his own concept of virtuous democracy, a cross between a small farm and a spinning-mill, a sort of American Sparta, where the individual would exist solely to serve a State more omnipotent, absolute, infallible and divine than a Grand Lama or a Nebuchadnezzar.*⁵²

The rejection of the utopian collective building schemes by reformers from diverse political spectrums could be explained by practical arguments and pragmatic reasons. By 1867, the year of the *Universal Exhibition in Paris*, the



05 Cité Napoléon, 58 rue de Rochecouart, Paris (IX), 1849-1853, perspectival section. © Paris, Bibliothèque des Arts Décoratifs.

- 06 Architect Émile Vandenberg, operated by Lille's Bureau de Bienfaisance, Cité Napoléon, rue Gantois, Lille (Nord, France), perspective view. © Dr. Aimé Houzé de l'Aulnoit, *Des logements d'ouvriers à Lille: la Cité Napoléon*, extrait des "Mémoires de la Société impériale des sciences, de l'agriculture et des arts de Lille" (Lille: Impr. de L. Danel, 1863).



- 07 Architect Émile Vandenberg, operated by Lille's Bureau de Bienfaisance, Cité Napoléon, rue Gantois, Lille (Nord, France), plan. © Dr. Aimé Houzé de l'Aulnoit, *Des logements d'ouvriers à Lille: la Cité Napoléon*, extrait des "Mémoires de la Société impériale des sciences, de l'agriculture et des arts de Lille" (Lille: Impr. de L. Danel, 1863).

Cité Napoléon or the Familistère were no longer considered paradigms to be followed, even by Napoleon III. Instead, the Emperor promoted the isolated family unit, such as, for instance, the construction of 41 detached dwellings, housing 123 families in the Cité of Avenue Daumesnil in Paris (12th district), erected in 1867 as model units.⁵³ However, the very official survey directed by the economist and statistician, Alfred de Foville (1842-1913), on housing conditions in France in 1894, *Enquiry into the Conditions of Living in France: Types of Houses*, contradicted any optimism. That study, read avidly by geographer Paul Vidal de la Blache (1845-1918) and architect Charles-Édouard Jeanneret (1867-1965) (before he adopted his pseudonym Le Corbusier), illustrated the absence of literal comfort, showing that, in rural areas, houses did not generally have water-closets, and that animals and human occupants (parents, children, servants, and farm hands) all lived together in the same room.⁵⁴

In The Arcades Project, especially in the "Dream City" and the "Dream House" section, Benjamin introduces the idea that the 19th century was an epoch of dreams, or a "dreamy period," formulating a pun with the German words *Zeit* [time, period], *Raum* [space], and *Traum* [dream]: "the 19th century [is] a spacetime (<Zeitraum>) ([i.e.] a dreamtime

<Zeit-traum>)." ⁵⁵ For Benjamin, "yes, this epoch was wholly adapted to the dream, was furnished in dreams."⁵⁶ Both the "dream city" and the "dream house" that Benjamin had described had dissolved, had trans-mutated into *Jugendstil*, or had been absorbed by Modernism. Giedion believed that, even if rejected by philanthropists and bourgeois reformers, these oneiric, hallucinated architectures constituted the ur-forms of Modernism. As a result, the trace of such "dream architecture" remained in the form of transparent galleries, arcades, open terraces, glass verandas, passages, glazed courts, access ramps, passageways, corridors, walkways, gangways, pathways, catwalks, skywalks, footbridges, and cantilevered platforms – all features that would become an intrinsic part of 20th century architecture.

Notes

- 1 This an edited and abbreviated version of: Georges Teyssot, "Comfort. Architecture's Technological Dream", *History of Architecture*, Vol. III, *Nineteenth-Century Architecture*, Martin Bressani, Christina Contandriopoulos, eds., Oxford, UK, Blackwell, John Wiley & Sons, Inc., 2017, 306-345; Georges Teyssot, "Hábitos, Habitus, Habitat", *Da teoria de arquitetura: doze ensaios*, Lisboa, Edições 70, 2010, 133-151, an early version.
- 2 César Daly, "De l'architecture domestique monumentale," *Revue générale de l'architecture et des travaux publics* 1, 1840, 197-205. This journal was published from 1839 to 1888. Hereafter it is cited as RGATP in the notes.
- 3 See Marc Saboya, *Presse et architecture au XIX^e siècle: César Daly et la Revue générale de l'architecture et des travaux publics*, Paris, Picard, 1991.

- 4 Daly, "De l'architecture domestique monumentale," 198.
- 5 Ibid., 199.
- 6 Daly, "De l'architecture domestique monumentale," 200. Original italics.
- 7 Ibid., 201. Original italics.
- 8 Ibid., 203. Original italics.
- 9 "Département de la Seine, Commission centrale de salubrité, Rapport sur la salubrité des habitations," signed by Charles Rohault de Fleury, January 1832.
- 10 Léon Vaudoyer, *Instruction sur les moyens de prévenir ou de faire cesser les effets de l'humidité dans les bâtiments*, Paris, Carilian-Gœury and V. Dalmont, 1844.
- 11 René Duvoir, "Du chauffage et de la ventilation," *RGATP* 5, 1844, 208-214, 493-495.
- 12 "Note sur un hôpital en fer, construit au Camp Jacob, île de la Guadeloupe," *RGATP* 7, 1847, 108-123.
- 13 Daly, "De l'architecture domestique monumentale," 279 and 282, and pl. 10; Jacques Guillerme, "Fredrik Blom, colonel et entrepreneur," in idem, *L'art du projet: histoire, technique, architecture*, Wavre, Mardaga, 2008, 177-181.
- 14 See Jeremy Bentham, "Panopticon, or the Inspection House," 1791 in *The Works of Jeremy Bentham*, ed. John Bowring, Edinburgh, Tait, 1843, Vol. 4.
- 15 Harriet Richardson, ed., *English Hospitals 1660-1948. A Survey of Their Architecture and Design*, Swindon, National Monuments Record Centre, 1998, 90-91.
- 16 *Assainissement des grandes villes avec l'air de la campagne. Aperçu du projet*, Lyon, Imprimerie de Bellon, no date, 1884.
- 17 Ibid., 11.
- 18 César Daly, "Du chauffage et de la ventilation," *RGATP* 5, 1844, 118.
- 19 Jean-Baptiste Jobard, "Architecture métallurgique," *RGATP* 8, 1849-1850, 29. The author was the director of the Industrial Museum of Belgium [Musée industriel de Belgique].
- 20 Walter Benjamin, *The Arcades project, Passagen-Werk*. English, Cambridge, Mass. Belknap Press of Harvard University Press, 1999, 564; the author of the *RGATP* article is Jobard, and not Gobard, as in the faulty English translation. Benjamin cites Sigfried Giedion, *Bauen in Frankreich, Eisen, Eisenbeton*, Leipzig, Klinkhardt & Biermann, 1928, 18; idem, *Building in France, Building in Iron, Building in Ferro-Concrete*, trans. J. Duncan Berry, Santa Monica, CA, Getty Center for the History of Art and the Humanities, 1995.
- 21 Jobard, "Architecture métallurgique," 30.
- 22 Walter Benjamin, "Paris, Capital of the Nineteenth Century," in *Reflections*, trans. Quentin Hoare, New York, Pantheon Books, 1985, 159.
- 23 Charles Baudelaire, "Salon de 1846," in *Œuvres complètes*, ed. Claude Pichois, Paris, Gallimard, NRF, 1976, Vol. II, 492.
- 24 Barry Bergdoll, *Léon Vaudoyer. Historicism in the Age of Industry*, Cambridge, MA, MIT Press, 1994, 275.
- 25 *Société Centrale des Architectes, Rapport fait au conseil par M. Adolphe Lance pour étudier les moyens propres à assurer l'assainissement des habitations insalubres*, Paris, Impr. de E. Thunot, 1850, 45.
- 26 "Review by Adolphe Lance, of: M. Léonce Reynaud, *Traité d'Architecture*," in *Encyclopédie d'architecture* VI, 1 April 1853, 47-53, VII, 1 May 1853, 62-69, citation 68.
- 27 César Daly, *L'architecture privée au XIXe siècle sous Napoléon III*, Paris, A. Morel et Cie., 1864, 38; 2nd edition, *Architecture privée au XIXe siècle*, Paris, Ducher, 1870.
- 28 César Daly, "Nouvelle architecture à l'usage des prolétaires anglais," *RGATP* 6, 1845-1846, 150-155, Édouard Ducpétiaux, *Projet d'association financière pour l'amélioration des habitations*, Brussels, A. Decq, 1846, which includes his "Projet pour la construction aux environs de Bruxelles, d'un quartier modèle spécialement destiné à des familles d'ouvriers," no place, no date [January 1844]. James Stevens Curl, *The Life and Work of Henry Roberts, 1803-1876 [...]*, Chichester, Phillimore, 1983.
- 29 César Daly, "Nouvelle architecture domestique à l'usage des ouvriers," *RGATP* 6, 1845-1846, 210-222.
- 30 Ibid., see also 410-412, 449-456, 503-509, 540-546.
- 31 See Dr. C.-H. Lallemand (a physician), *La caserne des douanes au Havre et les cités ouvrières*, Le Havre, Impr. de Carpentier, 1858; César Daly, "Comparaison entre les hôtels des invalides civils et les cités ouvrières," *RGATP* 8, 1849-1850, 208-220.
- 32 Lallemand, *La caserne des douanes au Havre*, 210.
- 33 Daly, "Comparaison entre les hôtels des invalides civils et les cités ouvrières," 210, 212, 213. Original italics.
- 34 Victor Considérant, *Description du phalanstère et considérations sociales sur l'architecture*, 2nd edition, rev. and corr., Paris, Librairie sociétaire, 1848, 71, 93; Michel Vernus, *Victor Considérant, 1808-1893: Le cœur et la raison*, Dole, Canevas Éditeur, 1993, 153.
- 35 Sébastien Camille Gustave Charléty, *Histoire du Saint-Simonisme, 1825-1864*, Paris, P. Hartmann, 1931, 249; Antoine Picon, *Les saint-simoniens: raison, imaginaire et utopie*, Paris, Belin, 2002.
- 36 Claude-Marie (called Henri) Dameth, *Agitation socialiste*, Paris, Impr. de Mme. de Lacombe, 1848; idem, *Appel aux socialistes*, Paris, Impr. de E. Duverger, 1848; idem, *Solidarité, société populaire pour la science sociale*, Paris, Impr. de Mme. de Lacombe, 1848.
- 37 Claude-Marie (called Henri) Dameth, *Mémoire sur la fondation de cités industrielles, dites cités de l'union*, Paris, Impr. de Schneider, 1849, (no pagination).
- 38 Louis Hauteceur, *Histoire de l'architecture classique en France*, Paris, Picard, 1955, Vol. 6, 115, 307-308, 314, 370-371.
- 39 Théodore Charpentier, *Projet d'assainissement du quartier de la Cité*, Paris, the author, 1832.
- 40 Théodore Charpentier, *Projet de maison pénitentiaire*, Paris, Impr. de Fermin Didot frères, 1838, (no pagination).
- 41 Alphonse Grün, *État de la question des habitations et logements insalubres*, Paris, Guillaumin, 1849.
- 42 Amédée Hennequin, "De l'amélioration des petits logements dans les villes," *Le Correspondant*, July-August 1848.
- 43 Victor Meunier, *Les Cités ouvrières, extrait de La démocratie pacifique*, Toulon, Impr. de Ve Baume, 1849; on Meunier, Theodore Zeldin, *Histoire des passions françaises: 1848-1945*, 5 Vols., Paris, Payot & Rivages, 2002, Vol. 3, 276.
- 44 Louis René Villermé, "Sur les Cités ouvrières," extract from the *Annales d'Hygiène publique et de médecine légale* 42, 1849, 11, Paris, 1850.
- 45 Ibid., 18.
- 46 Ibid., 18.
- 47 Ibid., 10.
- 48 Giedion, *Bauen*, 15; cited in Benjamin, *Arcades Project*, 390.
- 49 Benjamin, *Arcades Project*, 391.
- 50 Stephen Mac Say, *De Fourier à Godin: le Familistère de Guise*, Quimperlé, Éd. la Digitale, 2006; *Habiter l'utopie: le Familistère Godin à Guise*, ed. Marc Bédarida, Paris, Éd. de la Villette, 2004.
- 51 Aimé Houzé de l'Aulnoit, *Des logements d'ouvriers à Lille: la Cité Napoléon, extrait des "Mémoires de la Société impériale des sciences, de l'agriculture et des arts de Lille"*, Lille, Impr. de L. Danel, 1863.
- 52 Gustave Flaubert, *L'éducation sentimentale*, 1869; trans. Perdita Burlingame, *The Sentimental Education*, New York and Scarborough, Ontario, New American Library, 1984, 134.
- 53 Marie-Jeanne Dumont, *Le Logement social à Paris, 1850-1930: les habitations à bon marché*, Liege, Mardaga, 1991, 15.
- 54 Alfred de Foville, *Enquête sur les conditions de l'habitation en France: les maisons-type*, Ministère de l'instruction publique et des beaux-arts, Comité des travaux historiques et scientifiques, section des sciences économiques et sociales, 2 Vols., Paris, E. Leroux, 1894-1899, Vol. I, xxxiii-xxxv.
- 55 Benjamin, *Arcades Project*, 389.
- 56 Ibid., 213.

Georges Teyssot

Georges Teyssot is Professor at Laval University's School of Architecture, Quebec City (QC, CA). He is the author of many books, including *Die Krankheit des Domizils* (1989), *The History of Garden Design* (1991, 2000), *The American Lawn* (1999), and *Da teoria de arquitetura: doze ensaios* (2010). He has written the introduction to the volume of Diller + Scofidio, *Flesh: Architectural Probes* (1995, 2011). He was the curator with Diller + Scofidio of an exhibition on *The American Lawn* at the CCA in 1998. More recently, he has published a volume entitled: *A Topology of Everyday Constellations*, (Cambridge, MA: The MIT Press, 2013), of which he has edited the French version: *Une topologie du quotidien*, (Lausanne, CH: PPUR, Presses polytechniques et universitaires romandes, 2016).



Muddy River, Boston, 1920, view up-stream from Longwood bridge, 28 years after construction. © T. Ellison, Boston, photo album 00930-02-ph71.
Courtesy of the United States Department of the Interior, National Park Service, Frederick Law Olmsted National Historic Site.

Landscape architecture according to Olmsted: beyond purifying the air, pacifying the mind

BY CATHERINE MAUMI

Although the works of Frederick Law Olmsted – such as Central Park, Prospect Park, Franklin Park, Riverside – are today widely recognized and appreciated, some of them having, in fact, been the object of important restoration work, the thinking which engendered them is much more unfamiliar, notably due to its complexity. The mission of landscape architecture, as it is defined by Olmsted, is above all social: to improve the living conditions of the population, beginning with the most unfavored. It is not just a matter of providing breathing spaces, but of allowing people to experience places capable of appeasing their minds.

Frederick Law Olmsted (1822-1903), whose life spans the 19th century, is an important witness to the major transformations to have metamorphosed both the cities and the countryside in America. He also proves to be one of the essential actors: he tries to anticipate their evolution and, in order to do so, elaborates an original body of thought that is still up-to-date today. A man of his time, his thinking translates both the contradictions proper to American society of the day and, as well, his unshakeable faith in progress as a vector of democracy. For him, the advance of urbanization signifies a concomitant advancement of civilization. He thus regards positively – *a contrario* to some of his contemporaries – the aggrandizing influence of the urban world on the territory of the United States, while considering, with an always particularly critical eye, how this imposes by the way of great metropolises and industrial cities. In fact, their growth comes with an increment of all sorts of pollution, with a density that only generates insalubrity and stress, of which the first victims are the most fragile and impoverished populations. In each of the reports accompanying the proposed projects, Olmsted never fails to mention the special focus that should be given to the populations of women, children and invalids. The essential mission of the landscape architect consists, according to him, of inventing a new environment capable of assuring the physical and mental well-being of the American population as a whole. His vision is social and sanitary. It is up to the landscape architect to anticipate and organize the unavoidable movement of urbanization in order to offer healthier living conditions to the inhabitants of the great metropolises. Nor does he forget the inhabitants of the countryside, for whom large wilderness reserves are also established. Parks, Parkways, Park Systems, Suburbs and Natural Reserves, representing as many devices conceived with a view to improving the

quality of life of the American family and, in this way, its health, both physical and mental.

Such an acceptance of landscape, and of the mission of the landscape architect, cannot be understood without considering Olmsted's political and social commitment. Above all, it was important to him that his work contributed to the basis of democracy in the United States, i.e., that the whole of the population be assured the conditions of life and livelihood worthy of a democracy.

Parks, parkways, park systems and suburbs, to battle the insalubrity of the big city

It is in the name of such commitment that Olmsted rejoins the American Social Science Association, to whom he delivers, in 1870, his paper "Public Parks and the Enlargement of Towns", having a very large influence. He is convinced that scientific and social progress go hand in hand with the dissemination and sharing of the scientific data and discoveries made. Olmsted had, by the way, always sought to surround himself with the best specialists in their fields. As such he regularly solicits the counsel of the engineer George E. Waring Jr. (1833-1898) who had become, ever since their first collaboration on the drainage plans for Central Park, an expert in the field.¹ One of the sciences to particularly influence his practice was medicine. The War of Secession (the American Civil War) had led him to rub shoulders with numerous reputable and committed doctors – such as Elisha Harris (1824-1884) and John H. Rauch (1828-1894) – with whom he remained very close. Therefore, he is perfectly familiar with their works on the conditions of hygiene and salubrity in cities, the maladies caused by fouled air, the sullied waters, but also the excess of stress, of constant noise and of crowding in the streets, progressively obliterating "our ability to maintain a temperate, good-natured, and healthy state of mind".²

In fact, the influx of new inhabitants to the big cities most often results in an increase in density, amplifying, in great measure, the sanitary problems. One of the disastrous effects pointed out by Olmsted has to do with the heavy concentration of artificial elements, becoming ever more prejudicial with the increase in compactness because

*A man's eyes cannot be as much occupied as they are in large cities by artificial things, or by natural things seen under obviously artificial conditions, without a harmful effect, first on his mental and nervous system and ultimately on his entire constitutional organization.*³

Changing the structure of cities was, therefore, an urgent necessity for these men, who were equally motivated by the idea that the interests of the public should prevail from then on. "... if Boston continues to grow at its present rate even for but a few generations longer", stated Olmsted, the same going for all major American cities, "more men, women, and children are to be seriously affected in health and morals than are now living on this Continent."⁴ Parks, Parkways, Park systems, and suburbs are thus imagined by Olmsted so as to combat the densification at work by proposing a new urban morphology, much more open and aerated, providing the whole of the population with easier contact with the natural elements. Numerous observations confirm then that the visiting of a park provides continued pleasure and well-being, resulting

*from the feeling of relief experienced by those entering them, on escaping from the cramped, confined and controlling circumstances of the streets of the town; in other words, a sense of enlarged freedom is to all, at all times, the most certain and the most valuable gratification offered by a park.*⁵

Such results are only attained, however, if the park offers an environment that is agreeable and in perfect contrast to that of the cities, permitting visitors to forget the daily constraints and stress.

The mission of the landscape architect is thus that of organizing the inevitable progression of urbanization to come, by combining the natural qualities of the site (which it is important to enhance) with the progress in terms of transport and communication, then access to all of services and commerce that simplifying household tasks, without forgetting "the sewers, gutters, pavements, crossings, sidewalks, public conveyances, and gas and water works."⁶ In other words, what Olmsted means by landscape architecture is just as much akin to the future science of urbanism as it is to regional planning in some cases. This is evidenced by the impressive "Report to the Staten Island Improvement Commission of a Preliminary Scheme of Improvements" (1871), elaborated with the doctor Elisha Harris, the architect Henry Hobson Richardson (1838-1886) and the civil engineer J. M. Trowbridge, in addition to the assistance of several specialists responsible for providing detailed studies on geological and sanitary conditions, wildlife health, soil composition, water quality, etc. Their proposal consisted of

major drainage works to clean up the soil and fight against malaria, which would have the effect of enhancing the quality of the land thus improved. A system of water collectors and reservoirs was also suggested with a view to better management of flows and to constitute sufficient reserves for supplying the population of the island. The other great concern was the improvement of transportation, namely towards Manhattan, so that the suburbs to come would be perfectly connected with the rest of the metropolis. Finally, they proposed to provide the island with an efficient network of routes and *parkways*, so as to transform it into "a city of detached dwellings, with only such shops, stores, factories, and buildings for other purposes, as may, advantageously or inoffensively to the great body of the residents, be associated with them."⁷ It is important, explains Olmsted, that the houses be

*so far apart, that the air of each shall be absolutely free from contamination arising from any other or from the highways; the highways must be so far apart, so spacious, so furnished or flanked with trees that organic waste can not be carried from them, to an injurious extent, into the houses between them; that the air passing across them shall be quickly disinfected or screened of whatever it takes up that is filthy.*⁸

The project for Staten Island was never realized, but Olmsted had the opportunity to deploy his expertise in the matter on several occasions, namely at Boston with the improvements of the Back Bay Fens and that of Muddy River. The question of drainage of the land proves to be primordial for Boston, the city having never stopped claiming land from the ocean waters and the estuary of the Charles River. The viability of the vast intertidal zone of Back Bay remained a crucial problem during the 1870s, most particularly in its western part, known by the name of Back Bay Fens. Essentially consisting of regularly flooded marshes, its brackish waters were polluted by contaminated flows discharged from Muddy River and Stony Brook. For Olmsted, the site proved to be unsuitable for a park such as the inhabitants of Boston wanted. The innovation that he defended held precisely with the fact that he did not propose the creation of a park, but rather a layout focused on regulating the waters and depolluting them. To do so, he conceived, with the aid of the town engineer Joseph P. Davis (1861-1903), an ingenious arrangement that controlled the rise of the waters of the Charles River due to tides. The Back Bay Fens were, in this way, transformed into salt marshes. The whole was bordered by trees and bushes, giving the illusion of a park when seen from the town. Flood-gates situated at the mouths of Muddy River and Stony Brook, as well as a new network of sewers and collectors, governed the discharge of used waters into the two waterways and the marsh.⁹ In Olmsted's view it was, above all, a matter of sanitary engineering works that were indispensable for such a site to finally become a healthy one. The plants chosen corresponded to the only types capable of resisting and prospering in this hostile wetland environment. According to Anne Whiston Spirn (1947-),



01 Lithographer Julius Bien, artist after John Bachmann, publisher Edmund Foerster & Co, Central Park, New York, 1865, summer. © Harris Brisbane Dick Fund, 1947, Metropolitan Museum of Art digital collection, public domain.

“Boston’s Fens and Riverway were built over nearly two decades (1880s-1890s) as an urban ‘wilderness,’ the first attempt anywhere, so far as I know, to construct a wetland.” According to her, they would have “anticipated by nearly a century the introduction of ‘ecological’ planning and design in landscape architecture in the 1960s, the recent appreciation of urban ‘wilds’, and the ‘new’ field of landscape restoration.”¹⁰

The project for the improvement of Muddy River (1880) – or Riverway – was, in fact, the logical follow-up to that of the Back Bay Fens. It involved restoring the banks of the river, replanting them, rectifying its course at certain spots and depolluting its waters sullied by the discharge of sewage and regulating its flow to avoid floods. It was, therefore, an important sanitation project that sought to improve the valley and transform it into an agreeable place of promenade, whether one traveled by carriage, on horseback or on foot. A new “natural” river landscape was thus invented, conceived as a green corridor linking two stages of the journey: the Back Bay Fens and Jamaica Pond. This corridor in some places runs along marshes and ponds, some of these playing the role of retention basins at times of rising waters so as to prevent floods. What later became known as the Emerald Necklace led to the centerpiece of the “necklace”: Franklin Park, laid out at West Roxbury.

The dual curative dimension of the tree

That trees would make the air in cities healthier no longer needed to be demonstrated to the hygienist doctors of the

time, who mobilized in numbers for the creation of public parks in large American cities.

...it will appear obvious to everyone that tree-planting would not only break the force of the wind, supply warmth in winter, and coolness in summer, and thus moderate the extremes of temperature, but at the same time absorb to a considerable extent, the noxious gases which are generated in every populous city, – supplying oxygen, and thus contributing to the public health

affirms the doctor John H. Rauch about the city of Chicago, before adding “So intimately are trees associated with man, and so much do they contribute to his happiness and comfort, that their culture should everywhere be encouraged.”¹¹ He believed that their effect is measured at the scale of the entire city and not only at that of the neighborhoods endowed with trees. The works at Riverside were going on while Rauch drafted his essay *Public Parks: Their Effects upon the Moral, Physical and Sanitary Conditions of the Inhabitants of Large Cities; With Special Reference to the City of Chicago*. Such improvements could only receive his approval. On referring to the plans established in 1868 by Olmsted and Vaux, the doctor considered that:

Here are to be combined the comforts of the city, in the way of gas, water, drainage, with all the beauties of landscape gardening; and I have no doubt, judging from the report of the architects to the owners, and the work already accomplished, that it will be made one of the finest suburban parks in the country and one of

*the most pleasant and healthful places of residence in the neighborhood of the city.*¹²

Olmsted was all the more familiar with Rauch's work because they corresponded at length whilst the doctor drafted his essay.¹³ It is therefore not surprising to find, in the text of his lecture "Public Parks and the Enlargement of Towns", a tone and even a vocabulary similar to Rauch's. Taking up the doctor's agument regarding the virtues of vegetation and sunshine, Olmsted insisted even more specifically on another dimension that, to him, seemed fundamental: beyond purifying the air, trees pacified the mind. Yet if it was enough to plant trees to combat miasmas, it worked differently insofar as mental appeasement was concerned. Therein lay the mission of the landscape architect: to create a landscape capable of influencing the mental state of a person without necessarily being *conscious* of it. According to Olmsted, forms of recreation fitted into two categories: those that encouraged activity, physical or mental, and those that provided pleasure and well-being without one engaging in any conscious act. Chess and sport entered into the first, in the order of *exertive* recreation, with music and fine arts belonging to the second, which is the *receptive* division.¹⁴ So, although it proved relatively easy to conceive recreational spaces that provided the exhausted, oppressed, tormented inhabitants of cities with *direct* benefits (*exertive*) to their health, it was not the same in terms of the *indirect* benefits (*receptive*). The latter were, however, the most important in Olmsted's view, and the landscape architect had a duty to pay particular attention to these places of relaxation which act in an *unconscious* manner on the constitution of the individuals who experience them. The specificity of Olmsted's thought had to do precisely with this point, which would prove particularly difficult for its author to explain and for his fellows to grasp. According to Charles E. Beveridge (1935-), Olmsted created

*a comprehensive body of theory about landscape design that was so original that few of his contemporaries grasped its full meaning. His emphasis on the psychological effects of scenery gave his design principles a firm base independent of the "battle of the styles". Not esthetic theory but the very health of the human organism became the touchstone of his art.*¹⁵

Although an author of numerous works, Olmsted never assembled his thinking on landscape into just one book or treatise, as did many of his contemporaries. It was expressed progressively, within the essays and articles that he wrote throughout his life.

Such a conception of landscape encounters the reigning esthetic theories and the "taste" of the period, which favored, through the infatuation for horticulture, exotic plants and flowers, astonishing the eye with their singular beauty. However, this work of "decoration", of composition of "objects" selected for their exceptional shapes or colors, popularized in Europe and the United States, had nothing to do with landscape architecture for Olmsted, but at its best, with gardening and horticulture. He remained faithful

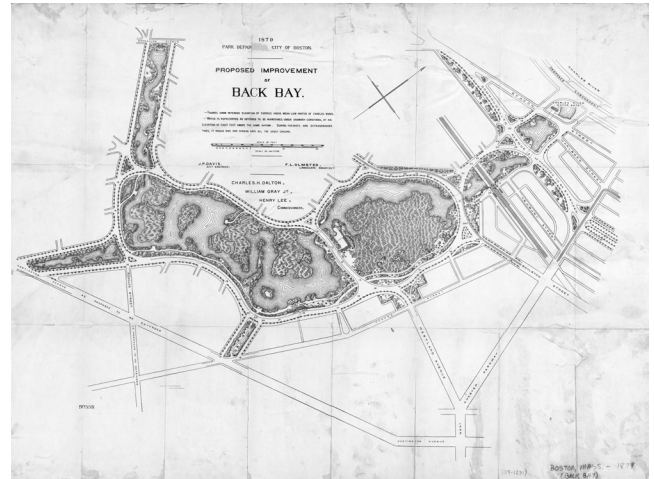
in this to the teachings of William Gilpin (1724-1804), Sir Uvedale Price (1747-1829) and Humphry Repton (1752-1818), by then very much forgotten. Landscape architecture was, according to Olmsted, in search of a different beauty, not perceptible at first glance, or not at all in a *conscious* way. It had nothing to do with imagining a "décor" but rather an overall project making sense over time, as the different species gradually grow and unfold in the space. Such a concept had its origin in the long walks taken during his childhood, in his reading, in his discovery of the landscapes of England. He never stopped defining it, as in the article "Trees in Streets and in Parks", published in 1882 in the *Sanitarian*. If the title seems banal, the contents are less so.

Taking the example of trees lining the streets of a village,¹⁶ which he found "beautiful", he changed his mind whilst reading a book by Charles Blanc, which stated, as explained by Olmsted, "that nature is not beautiful, the word being applicable, in the opinion of the author, only to matters of design."¹⁷ Even if these trees lack the qualities that would serve to define beauty – "order, proportion and unity" – it remained no less true to him that certain among them are of an "extraordinary beauty" rightly due to the "spontaneous growth" that had given them this specific shape, as a result of the richness of the soil. He concluded provisionally: "if the result is not to be called beautiful, it is only because it has more sublimity than beauty."¹⁸ Now, what proved essential was precisely to learn to recognize that plastic quality, specific to the nature of the tree, because it proved to be just as essential to human health as is its capacity to filter the air. He actually deplored the fact that parks were, most often, considered no more than " 'airing grounds,' 'breathing places,' as 'the lungs of London,' and so on", neglecting the fact recognized by "men of science and leaders of public opinion that they were pleasant and useful in other ways, but, until within a few years, these other ways have been considered as of incidental and relatively insignificant value."¹⁹ A park did not just constitute a solution to a sanitary engineering problem – according to an "atmospheric theory"; nor is it just about embellishment. Experience demonstrated, *a contrario*, the erroneous nature of the idea according to which "a park should be but a decorated airing ground, the more decorated at all points the better". Even the public themselves said that they found "in the park something of value not to be thus explained."²⁰ And this value so difficult to determine proved to be, in Olmsted's view, incompatible with the esthetic choices that are most often favored: "the pursuit of the decorative motive, in planting or otherwise, is in its tendency, destructive of the objects which I claim should be paramount"²¹ he affirmed. He explained:

One may go through a park and take account of the decorative value of the trees and all other notable objects in much the same way. But when the inventory is complete, the estimate of the recreative value of the collection will hardly have been begun. In attempting to distinguish the action in the mind, and through the mind upon the entire organization of men, that I suppose should constitute the special recreative and sanative value of large parks,

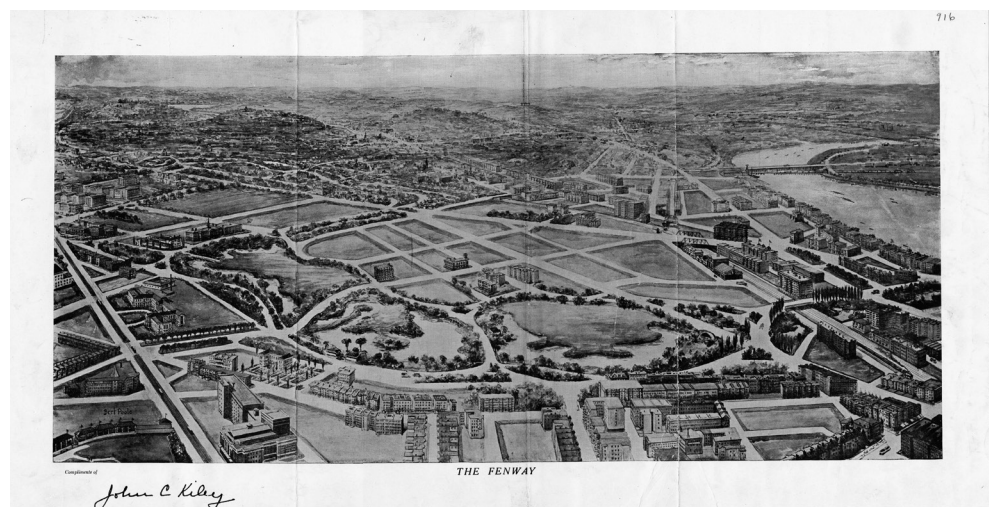
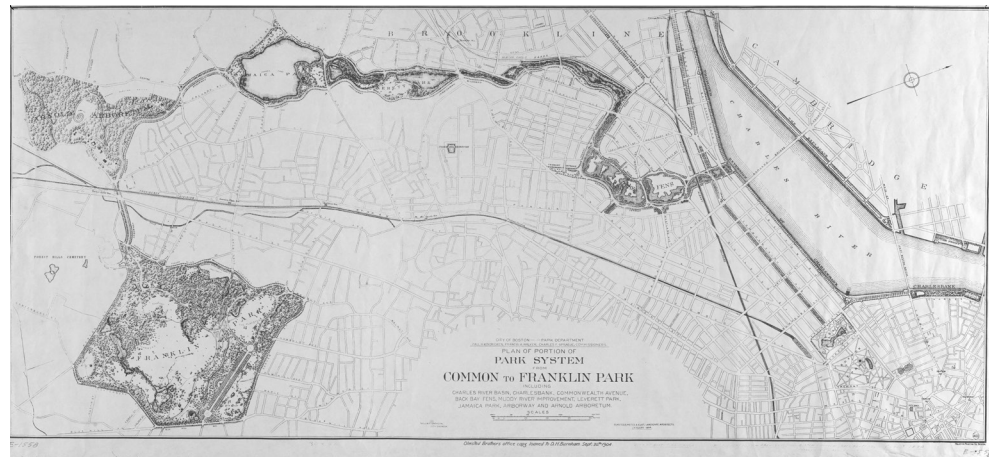


02 Prospect Park, The Long Meadow, Brooklyn, 1902. © (Photographer unknown) photo album 00509-03-ph01. Courtesy of the United States Department of the Interior, National Park Service, Frederick Law Olmsted National Historic Site.



03 Landscape architect Frederick Law Olmsted; Draftsman Walter Stranders; Engineer J. P. Davis, Proposed improvement of Back Bay, Boston, 1879. © New York Public Library Digital Collections, Lionel Pincus and Princess Firyal Map Division (09-1231).

04 Olmsted, Olmsted & Eliot, Landscape Architects, plan of portion of park system from Common to Franklin Park: including Charles River Basin, Charlesbank, Commonwealth Avenue, Back Bay Fens, Muddy River Improvement, Leverett Park, Jamaica Park, Arborway and Arnold Arboretum, Boston, January 1894. © Boston Public Library, Norman B. Leventhal Map Center.



05 The Fenway, Boston. © John Kiley (date unknown). Courtesy of the United States Department of the Interior, National Park Service, Frederick Law Olmsted National Historic Site.

*I shall be obliged to grope my way in a branch of science in which I have no claim to be adept*²²

This “science” to which he referred reminded him of the readings of his youth. Olmsted had, in fact, been particularly struck by the teachings transmitted in the work²³ of Johann Georg von Zimmermann (1728-1795) *Solitude Considered, with Respect to Its Influence on the Mind and the Heart*,²⁴ in which could be found an interrogation of the ability of nature to act on the mind and to relieve certain troubles of the spirit. Zimmermann attributed this power of landscape over the human spirit to the strength of the imagination. His theory echoed other teaching received from the congregational pastor and theologian Horace Bushnell (1802-1876), close to the Olmsted family,²⁵ according to whom the human being exerted two kinds of influence: one active, or voluntary, the other unconscious, pouring out of us in an unintentional manner.²⁶ This second source was unconscious because it was a result of habitual, daily behaviors or gestures rather than intentional or verbal actions; to learn to appreciate it was so much more important in Olmsted’s eyes that it is that much more difficult to grasp.

Learning to enjoy the charms of Dame Nature

In this manner, the way in which he observed the spectacle of nature, even his conception of landscape architecture, was not the result “of deliberate intention or by instruction” but rather of unintentional circumstances and the unconscious influence exerted by those around him. These progressively accustomed him to observing and contemplating, for pleasure, rural and picturesque scenery.²⁷ He liked to remember the silent horseback rides with his father, and his reverential admiration of the nature of New England. “I think that I was largely educated for my profession by the enjoyment which my father and mother (step-mother) took in loitering journeys; in afternoon drives on the Connecticut meadows” he recounted, pointing out that he had thus gained the habit of appreciating the parks and promenades as “an amateur of scenery and so to look upon trees and plants and weeds less from regard to their beauty as such, than from regard to their value as elements of compositions of scenery.”²⁸ This unconscious process between parents and child he was at the time – allowing him ever since to enjoy the plenitude of these landscapes and the well-being they provided – corresponded to that which he tirelessly wished to reproduce, by creating landscapes generating such an unconscious emotion, partly mysterious. An emotion similar to that experienced in England, where it was revealed to him that:

Dame Nature is a gentlewoman. No guide’s fee will obtain you her favor, no abrupt demand; hardly will she bear questioning, or direct, curious gazing at her beauty; least of all, will she reveal it truly to the hurried glance of the passing traveler, while he waits for his dinner, or fresh horses, or fuel and water; always we must quietly and unimpatiently wait upon it. Gradually and silently the charm comes over us; the beauty has entered our souls; we

*know not exactly when or how, but going away we remember it with a tender, subdued, filial-like joy.*²⁹

Landscape architecture, as defined by Olmsted, must provide the American population with the conditions that allow it to live such an experience and to feel a similar joy. Landscape holds a capacity to move someone, analogous to that of music, he believed, if it is conceived with this view in mind. That would suppose excluding from the composition all objects “before which people are called to a halt, and to utter mental exclamations of surprise or admiration” because the effect they have is precisely “to interrupt and prevent, or interfere with processes of indirect or unconscious recreation.”³⁰ The landscape having the maximum wholesome regeneration power was that which aroused the least “conscious cogitation”. Thus, a common wildflower amidst other similar ones exerted “a more soothing and refreshing sanitary influence”³¹ than that superb rare one coming from Japan. For this reason, the “pastoral” landscape consisting of the arrangement of trees projecting their shadows over vast expanses of grass, or being reflected on the calm surface of the waters, possessed the greatest potential for appeasement according to Olmsted, who insisted:

*the circumstances may be recalled that the evil to be met is most apt to appear in excessive nervous tension, over-anxiety, hasty disposition, impatience, irritability, and that the grateful effect of a contemplation of pleasing rural scenery is proverbially regarded as the reverse of this. It is, for example, of the enjoyment of this pleasure, and not simply of air and exercise, that Emerson says, “It soothes and sympathizes,” that Lowell says, “It pours oil and wine on the smarts of the mind,” and which Ruskin describes as “absolute peace.”*³²

These are the conditions of this “absolute peace” that Olmsted strove to create each time in order to pacify, let us say to civilize, the American society of the time.

Note: The topic of this article is being developed into a work to appear soon: Maumi, Catherine, *Frederick Law Olmsted, une poétique du paysage américain*, Editions de La Villette, 2020.

This text was translated into English by Neil Robert Beck.

Notes

- 1 George E. Waring published, in 1867, the work *Draining for Profit, and Draining for Health*.
- 2 Frederick Law Olmsted, “Public Parks and the Enlargement of Towns”, a paper read before the American Science Association at the Lowell Institute, Boston, 25th February 1870, in Charles E. Beveridge (Ed.), *Frederick Law Olmsted. Writings on landscape, culture and society*, New York, Literary Classics of the United States, 2015, 470.
- 3 Frederick Law Olmsted, “Notes on the Plan of Franklin Park and Related Matters”, Boston, 1886, in Charles E. Beveridge, Carolyn F. Hoffman (Ed.), *The Papers of Frederick Law Olmsted, Supplementary Series*, Vol. 1 “Writings on Public Parks, Parkways, and Park System”, Baltimore, John Hopkins University Press, 1997, 475.
- 4 Frederick Law Olmsted, “Public Parks and the Enlargement of Towns”, *op. cit.*, 473.



06 The Muddy River Improvement, Boston, 1890s. © J. G. Langdon, 1892, photo album 00930-01-ph22-02. Courtesy of the United States Department of the Interior, National Park Service, Frederick Law Olmsted National Historic Site.



07 Franklin Park, Boston. © [Photographer and date unknown], photo album 00918-06-ph143[b] front. Courtesy of the United States Department of the Interior, National Park Service, Frederick Law Olmsted National Historic Site.

- 5 Frederick Law Olmsted, VAUX, Calvert, "Preliminary Report to the Commissioners for Laying Out a Park in Brooklyn, New York: Being a Consideration of Circumstances of Site and Other Conditions Affecting the Design of Public Pleasure Grounds", 24th January 1866, in Charles E. Beveridge, Carolyn F. Hoffman (Ed.), *op. cit.*, 83.
- 6 Frederick Law Olmsted, "Public Parks and the Enlargement of Towns", *op. cit.*, 466.
- 7 Report to the Staten Island Improvement Commission of a Preliminary Scheme of Improvements", 1871, in Albert Fein, *Landscape into Cityscape. Frederick Law Olmsted's Plans for a Greater New York City*, New York, Van Nostrand Reinhold Company, 1967, 251.
- 8 *Ibid.*, 199.
- 9 Nancy S. Seasholes, *Gaining Ground. A History of Landmaking in Boston*, Cambridge, The MIT Press, 2003, 215 and following.
- 10 Anne Whiston Spirin, "Constructing Nature: The Legacy of Frederick Law Olmsted", in William Cronon (Ed.), *Uncommon Ground. Rethinking the Human Place in Nature*, New York, W. W. Norton & Company, 1996, 104, 108.
- 11 John H. Rauch, *Public Parks: Their Effects upon the Moral, Physical and Sanitary Conditions of the Inhabitants of Large Cities, With Special Reference to the City of Chicago*, Chicago, S. C. Griggs, 1869, note 79.
- 12 *Ibid.*, 31.
- 13 Bonj Szczygiel, Robert Hewitt, "Nineteenth-Century Medical Landscapes: John H. Rauch, Frederick Law Olmsted, and the Search for Salubrity", *Bulletin of the History of Medicine*, Vol. 74, No. 4, hiver 2000, 729.
- 14 Frederick Law Olmsted, "Public Parks and the Enlargement of Towns", *op. cit.*, 476.
- 15 Charles E. Beveridge, Paul Rocheleau, David Larkin (Ed. by) *Frederick Law Olmsted: Designing the American Landscape*, New York, Universe Publishing, 1998, 30.
- 16 Probably Brookline, in the Boston area, where he lived from then on.
- 17 Frederick Law Olmsted, "Trees in Streets and in Parks", *Sanitarian*, September 1882, 513-518, in Ethan Carr, Amanda Gagel, Michael Shapiro, (Ed.), *The Papers of Frederick Law Olmsted*, Vol. 8 "The Early Boston Years, 1882-1890", Baltimore, Johns Hopkins university Press, 2013, 60. The work mentioned by Olmsted is that of Charles Blanc, *L'art dans la parure et le vêtement*, Paris, 1875; it was translated into English in 1877 with the title *Art in Ornament and Dress*.
- 18 *Ibid.*, p. 61.
- 19 *Ibid.*, p. 62.
- 20 *Ibid.*, p. 63.
- 21 *Ibid.*, p. 63.
- 22 *Ibid.*, p. 64.
- 23 Cf. Charles E. Beveridge, "Frederick Law Olmsted's Theory of Landscape Design", 19th Century, Vol. 3, No. 2, summer 1977, 39-40.
- 24 Translated and published in English in 1807.
- 25 Cf. Andrew Menard, "The Enlarged Freedom of Frederick Law Olmsted", *The New England Quarterly*, Vol. 83, No. 3, Sept. 2010, 508-538.
- 26 Horace Bushnell, *Unconscious influence, A Sermon*, London, Partridge and Oakey, 1852, 4.
- 27 Letter from Olmsted to Mariana Griswold van Rensselaer, 11th June

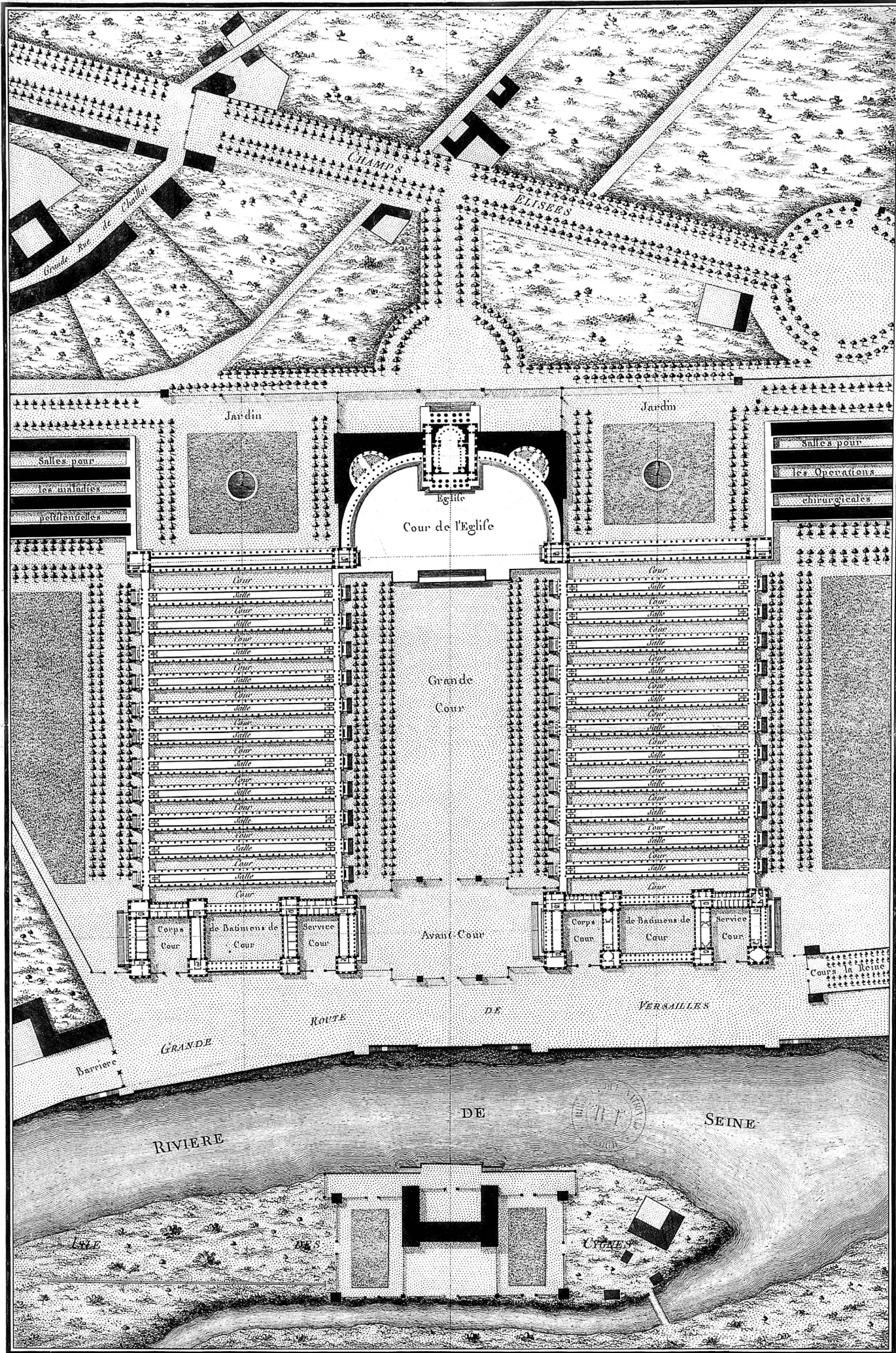
- 1893, in David Schuyler, Gregory Kaliss, Jeffrey Schlossberg (Ed.), *The Papers of Frederick Law Olmsted*, Vol. 9 "The Last Great Projects, 1890-1895", Baltimore, Johns Hopkins university Press, 2015, 645.
- 28 Letter from Olmsted to Mariana Griswold van Rensselaer, 18th June 1893, *op. cit.*, 654.
- 29 Frederick Law Olmsted, *Walks and Talks of an American Farmer in England*, New York, George P. Putnam, 1852, 155.
- 30 Frederick Law Olmsted, "Trees in Streets and in Parks", *op. cit.*, 65.
- 31 *Ibid.*, *op. cit.*, 65.
- 32 Frederick Law Olmsted, "Notes on the Plan of Franklin Park and Related Matters", *op. cit.*, 477.

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Catherine Maumi

Architect, doctor of EHES, HDR (Paris 8), presently full professor in History of Architecture at ENSA Paris La Villette, Research laboratory AHTTEP/Ausser. Her research focusing on the cities and the territory of the United States has been rewarded with diverse fellowships from the Canadian Center for Architecture, from CASVA (National Gallery of Art, Washington, D.C.). Her latest work published: *Frank Lloyd Wright, Broadacre City: la nouvelle frontière*, Editions de La Villette, 2015.



Jean-Baptiste le Roy and Charles François Viel, design for the Hôtel-Dieu in Paris, 1773, example of the alternative type that eventually would dominate hospital architecture for over a century: the pavilion system.

Composé pour l'architecture et dessiné en 1760 par Ch. Fr. Viel Architecte de l'Hôpital Général de Paris.

Gravé par L. Guéneau d'Arville Inspecteur de l'Eglise du Roi, en 1773.

PLAN GÉNÉRAL D'UN PROJET D'HÔTEL-DIEU,
de M. le Roy, de l'Académie Royale des Sciences.
Imprimé en 1773

Cet Edifice disposé d'après les principes de la Physique et de la Médecine, devoit être placé au bout du Cours de la Reine.

Modern hospitals and cultural heritage

BY COR WAGENAAR

The decades between 1950 and 1980 mark the heydays of modern hospital architecture. It represents an ideal merger between Modernism and medicine and a highly specific approach to health and illness as medical qualities. Since the 1990s, public health experts have recognized that aspects that have been discarded both by medicine and by modern architecture should be re-integrated in all policies that target health: the modern hospital has become a relic of the past. This essay is a plea to incorporate the changing views on health and illness in the value assessment of the modern hospital.

The history of hospitals is charged with paradoxes and contradiction. Hospitals have always been linked to the essence of human life, to issues that become fundamental when life is endangered by disease. That, however, is about the only thing the series of institutions with the name “hospital” have in common – in all other aspects hospitals from one period hardly resemble their namesakes from other epochs.¹ We tend to take for granted that the primary function of hospitals is to contribute to the curing of patients – but this only became their *raison d'être* in the late 18th century. Likewise, we see them as medical facilities – but even though hospitals have always attracted medical doctors, they only began to represent the frontiers of medicine in the last half of the 19th century. Today's hospitals continue the tradition that started back then. They are the setting in which medical specialists, supported by an ever growing arsenal of medical equipment, take care of patients by providing medical treatment in order to cure them. They have become strongholds of medicine, and the mission of medicine is to apply scientific scholarship and medical technology to remove physical (and mental) threats to life itself or – equally important – the quality of life. If hospitals are indeed medical facilities, it isn't difficult to link hospital architecture with Modernism, even if its history shows that in most countries, hospitals only accepted Modernism as their preferred architectural style in the 1950s. Ultimately, both medicine and Modernism deal with human beings – and, therefore, face the need to develop views on what it means to be human. Both, moreover, share a fascination for what its protagonists see as a scientific approach to solve well-defined problems. And both tend to cultivate the idea that in order to clearly understand these problems, it is necessary to break away from the past and overcome outdated, irrational views. Finally, medical professionals and modern designers often see their work as a social act, a contribution to a more decent society. In Europe and the United States, the modern hospital evolved as part of the social networks of the Welfare State (and in Central and Eastern Europe of its communist counterpart). It was the

proud expression of a great ideal: making hospital services – by far the most expensive component of any healthcare system – available for all citizens.

Now the quintessentially modern hospital, defined here as the ideal merger of a specific, “scientific” approach to architecture, and medicine as a field dominated by concepts derived from the natural sciences, appears to be a thing of the past. Hundreds of them have been built between 1950 and 1980, and now most of them are sadly outdated – not only because they have become obsolete, but also because their philosophical and theoretical foundations have collapsed. This, of course, does not impact their importance as monuments of Modernism. Quite the contrary: it embeds their qualities in debates that have been going on for centuries, and are not likely to fade away any time soon. The modern hospital has become a historical phenomenon – a *contradictio in terminis*: it is not obvious for a building that represents the ambition to escape from history to be listed as a historical monument, but there is no doubt that many of them deserve that status. If they do, it is because they embody specific cultural values. Current trends in cultural heritage assessment may help to expand the range of values that should be taken into account. These go beyond aesthetics and design philosophies. They may include aspects these buildings almost desperately tried to do away with: they are also monumental expressions of processes of reduction and, even denial. This essay is a plea to incorporate the positions hospitals represent in the debates on their function and, more specifically, on how their function relates to the philosophical disputes on what it means to be human.

The modern hospital evolved at the crossroads of debates and developments that had their roots in the 18th century (with precursors that hark back to the Renaissance – but we will not go that far back). Arguably, hospitals have always been microcosms of society and, more specifically, the way society conceives sickness, recovery and, ultimately, death. These views radically changed during the Enlightenment, and it is hardly a coincidence that the very first designs that conceived hospitals as institutions that should help cure

patients were made in this period. They were the result of a design competition for a new building of the Paris Hôtel-Dieu, which burnt down in 1772. The approximately 200 plans that were handed in between 1772 and 1788 can be seen as philosophical statements in a heated debate. Key issues were at stake: nature versus religion, rationality versus metaphysics, mechanical clarity versus arbitrariness, accountability versus blind acceptance, critical thinking versus unquestioning approval. Siding with the advocates for science and rationality, the architects produced hyper critical plans that forced a radical break with the past – this is one of the features that characterizes their proposals as precursors of modern architecture. It adds a historical dimension to the cultural values hospitals represent. What the competition entries have in common – indeed, what all architecture aspires to – is to position people in space, but in this epoch it gained a special meaning: space became a container of the natural as well of the social world. The alternative plans for a new Hôtel-Dieu not only envisaged a new hospital, but also offered radically new views on nature and society.

A lot has been written about the competition designs for the new Hôtel-Dieu. One of its lasting contributions is the representation of a hospital as a *machine à guérir* [healing machine]. It was a provocative term that expressed the authors' criticism of what hospitals had been until then: neither geared to the need to contribute to healing people, nor endowed with the neutral, objective, no-nonsense qualities of a machine. It is undoubtedly true that hospitals have always been characterized by the concentration of the ill and wherever such concentrations exist, there will always be medical doctors around. There was little they could do to help cure the ill and injured, nor was that the primary ambition of hospitals. The main objective of hospitals, decreed by the Church at the Synod of Aachen in 816, was the rationalization of charity. They were populated by the poorest layers of society and were lucky to prolong their lives for a while. The very last thing the well-to-do would think of if they suffered ill-health was go to a hospital – instead, they would order the doctor to come to their home. When the architects who entered the competition claimed that hospitals were about healing, this was another extraordinary statement. Equally astonishing was the term *machine*, which suggested a mechanical approach to, in this case, the matters of life and death that patients in hospitals typically face – precisely the issues the Church addressed with religious and metaphysical concepts. The *machine à guérir* liberated the hospital – and healthcare in general – from the constraints of religion, conventions, traditions and superstitions.

The entries of the design competition for a successor to the burnt down Hôtel-Dieu envisaged buildings that indeed operated in a machine-like way, their primary function being to supply the wards with fresh air. Medical professionals were convinced that fresh air contributed to the patient's well-being and, possibly, recuperation. Since cities suffered from pollution and were infamous for their stench (people could smell Amsterdam from several kilometers

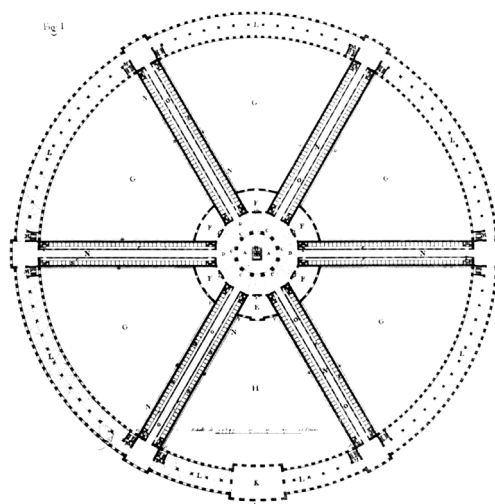
away), they were seen as unhealthy, a view that was supported by statistics: life expectancy in cities was substantially lower than it was on the countryside. Ideally, hospitals should, therefore, be built in the countryside, but this hardly ever happened since their main target group remained what it had been for centuries: the urban poor. If the new Hôtel-Dieu was destined to be somewhere in the city, probably in the vicinity of the remains of the old hospital, the design of the building should make up for the polluted air of its setting. Its layout should guarantee a maximum of fresh air. Providing fresh air was a technical problem that required a technical solution. The mining industry provided valuable inspiration, and in all likelihood the art of building orange-ries also informed the architects. Obviously, the world of technology – of creating machines – is intimately linked to the natural sciences. Medicine, the discipline that defined the program, also aspired to be part of the natural sciences. Thus, the revolutionary hospital types resulting from the design competition appeared to be entirely mechanical in the way they were supposed to function.

They wished to create islands of purified, cleansed air and anticipated the sanitation of cities, which also aimed to provide clean air and, in the course of the 19th century, introduced sewage systems, networks for clean drinking water and waste disposal services. These innovations were the first step in developing the field of public health; they illustrate the close ties between public health and prevention strategies (as opposed to the crisis management strategies associated with medical treatment of individual patients). The strategy of health promotion by environmental control, a procedure that enhanced public health by non-medical policies, originates in the revolutionary hospital designs of the late 18th century. (Although medical professionals inspired the revolutionary hospital plans, medicine itself played, at best, a marginal role in them: their contribution to healing their patients rested entirely on the environment they created. If Michel Foucault (1926-1984) blames them for being prisonlike facilities, this assumption is probably fueled by the panopticon-like floorplans of the circular radial type, which resembled contemporary prison designs – but in these radial plans, the center is not a control post for guards but a chapel. If Foucault sees hospitals as exemplary for the coercive faculties of the medical science – one of the claims that made him famous – he is clearly mistaken: the first generation of hospital designs after healing became their primary function cannot be seen as medical institutions...)²

However, “mechanical” competition designs aimed to be, the buildings they envisioned do not look like machines, or factories, or any other utilitarian facility. Quite the contrary: they were characteristic of the ambition, inherent in architecture since times immemorial, to express cultural values – they were, in a way, linguistic devices and operated – as architecture inevitably does – in the domain of the humanities. Hospitals had always been representative building – they did not represent medicine, nor their function, but the ambition of their clients (the Church, municipalities, wealthy citizens, and, when tied up with the



01 Gordon Bunshaft, Fort Hamilton Veterans Hospital, Brooklyn, designed in 1946, this striking machine age building can be seen as a precursor of the Breiftuß-type.



02 Antoine Petit, design for the Hôtel-Dieu in Paris, 1774, example of a project with a circular floor plan and patients' wards radiating outwards from a central core.



03 Gordon Bunshaft, Fort Hamilton Veterans Hospital, Brooklyn, designed in 1946, this striking machine age building can be seen as a precursor of the Breiftuß-type.

military, the state) to express their benevolent intentions. In the 18th century, Classicism became the dominant style. Few designers doubted that Classicism was the only appropriate style to represent the Enlightenment. It is the most geometric of all historical styles, which endows it with an aura of universality. More importantly, it refers to ancient times, when, in the view of Enlightenment philosophers, the processes of history had not yet caused society to drift away from its natural origins.

Combining the two domains of the natural sciences (medicine) and the humanities (representation of cultural values), the revolutionary hospital projects of the late 18th century are characteristic for one of the most interesting aspects of Enlightenment thinking: the conviction that science is essentially one single, solid field with one single, clear mission: to understand the world (our environment) and our place in it. In the late 18th century, most scholars eagerly absorbed whatever knowledge they could stomach on the widest possible range of topics; they wanted to know everything there is to know about the natural sciences, astronomy, botany, but also had a keen interest in social issues, politics and history, and they shifted between all these fields with remarkable ease. Few of them gave the impression that they considered the methods used to study natural phenomena were superior to those applied in historical studies, or the other way around – though there was no doubt about the fundamental differences between the exploratory and explanatory devices used in both fields: universal laws in the natural sciences, man's mental world in the humanities (for argument's sake we only distinguish these two fields). The evolution of hospital typologies since the late 18th century can be attributed to the weakening of the concept of science as a unified domain that encompassed different methods in different fields but with the same purpose: to get a clear and realistic picture of all aspects of the environment that define human life.

The modern hospital that conquered the world since the 1950s can be seen as the ultimate and sublime outcome of this process. Medicine – intimately linked to the natural sciences but dealing with human beings – epitomized the characteristically 19th century idea that the natural sciences represent the only valid way to understand the universe. It is easy to see why medical professionals were eager to intervene in the designs for a new Hôtel-Dieu: these were brilliant manifestations of a world liberated from the constraints of irrational concepts, and this liberation had been at the heart of their emergence as a scientific discipline since the late Renaissance. The prospect of inspiring a similar revolution beyond the world of medicine, imprinting the spirit of the natural sciences (which slowly began to monopolize the term “science”) to the world at large must have appealed to them – in this respect, the sanitation of cities was only the first step. But is it at all possible to transfer the methods of the natural sciences – unalterable, universal laws that yield the same outcomes whenever and wherever they are applied – to the world of the humanities? At the macro level, Karl Marx's (1818-1883) philosophy of historical materialism is the ultimate attempt to explain

social change by “historical laws” modeled on natural laws, and, although he is undoubtedly the most influential philosopher of the 19th century, historical reality refused to unfold according to his theory. At the micro level of human beings in need of medical treatment, it implied that people were conceived of as mechanical entities where the laws of nature apply. Those aspects of human existence that were normally studied by the humanities (in perfectly scientific ways, though with different methods) were eliminated for the sake of scientific clarity, reliability and predictability; to put it a bit brusquely: everything referring to people's qualities as civilized creatures was discarded. The conviction that this reduction was science based boiled down to the so-called “Cartesian dichotomy”: there is no connection whatsoever between people's experiences and the way they feel, and their health since the latter is uniquely defined by mechanical issues. This transformed patients into passive recipients of the medical processes to which they were subjected, and helped to profile the medical professionals as an elite corps (a status it has been cultivated ever since).

The allegedly scientific, radically reductionist view of medicine as rooted in the natural sciences only began to impact hospitals when these developed in to medical institutions. Until the mid-19th century, medicine did not rely on medical institutions like hospitals (where no medical services were offered that couldn't be provided anywhere else, for instance at home). Nor did hospitals play a role in the gradual expansion of medical knowledge, a phenomenon that coincided with the precise observation of the development of diseases in individual patients (which called for academic hospitals that served scholarly purposes but did not aspire to cure patients). A key moment in the history of hospital architecture was the introduction of surgery. For ages, surgery was not integrated in the medical profession, but part of the military – the first handbooks on the removal of bullets date from the 16th century. The amputation of wounded limbs was another surgical procedure associated with the army. These operations took place near the battlefield, not in hospitals. Paris' first building specifically dedicated to medicine was not a hospital but Jacques Gondoin's school of surgery (1769-1775); the professionals educated here were taught how to help wounded soldiers. It was the last resort for wounded soldiers who would surely die if surgeons didn't intervene. Very few people would voluntarily opt for surgery as long as there were no painkillers that worked, and the risk of dying of infection after successful surgery was very high. Crawford W. Long (1815-1878) introduced ether as an anesthetic in 1846, and a year later, Ignaz Semmelweis (1818-1865) demonstrated the importance of hygienic measures in hospitals, proving that the practice of washing hands reduced mortality due to puerperal fever to one percent. Before Louis Pasteur (1822-1895) and Joseph Lister (1827-1912) put their minds to it, nobody knew what made Semmelweis' procedures effective. Joseph Lister began to experiment with carbolic acid in 1867, diminishing the danger of infection. Hospitals were singled out as the only facilities that could accommodate surgery, and the operating theater



- 04** Paul Nelson, design for a medical city in Lille, France, 1933, this project is a well-known example of the merger of modern architecture and modern, technology-based medicine. Before the 1950s, however, the clients of hospitals only rarely opted for modern design and preferred traditional, representative buildings.



- 05** Jan Piet Kloos, Diakonessenhuis, Groningen, 1965, view of the patient wards, an example of modern hospital architecture of the 1960s. The floor plan resembles a K, the rooms in the wards face south.



- 06** Krohn and Hartvig Rasmussen, Hvidovre Hospital, Copenhagen, opened in 1976, this modern hospital was one of the first to explore the possibilities of low-rise hospital models.

became the first functional unit that could only be found in these buildings and nowhere else.

The introduction of surgery marks the beginning of the medicalization of the hospital – it gradually shed its stigma as an almshouse for the urban poor, but it retained the architectural features befitting a charitably public building. 19th century hospitals typically combine the spacious layout they inherited from the late 18th century with the representative qualities of schools, theaters and town halls. The vast majority followed the principles of the pavilion type: a set of separate buildings on either side of a central axis that divides the area for women from that for men, and usually leads to an architectural landmark (the building for the administration and the board of directors, or a chapel). Greenery, sometimes in the form of lavishly designed gardens, separate the pavilions, help to create a pleasant climate and provide fresh air to the wards – most pavilions were just that: wards with beds for inpatients. Nursing was the primary activity in hospitals, the operating theater one of the few facilities specifically dedicated to medical procedures. As the medicalization continued and accelerated, a discrepancy between functionality and representation appeared to emerge; closing it was one of the challenges of the architects, some of whom began to specialize in health-care buildings.

Around 1900, architecture and urban design saw the emergence of Modernism, the most radical protagonists of which wanted to ban everything that was not based on scientific views of social and technological progress. Many of its goals coincided with that of the emerging medical discipline centuries before: science – or at least rationality – should rule supreme, and design should discard everything that was deemed superfluous, that is to say: not essential for making a building work. Of course, it makes a difference if superstitious convictions, religious banter or irrational conventions are expelled, or a design vocabulary is banned that has evolved in many centuries and fulfills specific functions in its own right: the “linguistic” qualities that link architecture to the evolution of society and the cultural values embedded in it. (The attempts at extreme reductionism provoked harsh criticism from such eloquent critics as Werner Hegemann (1881-1936), chief editor of *Wasmuths Monatshefte für Baukunst* in the 1920s, and for good reasons: architecture is by default a public medium, and if this mediatic aspect is silenced, it loses part of its public functions.³ Of course, the debate on this particular issue was highly rhetorical: almost without exception, modern architects were very well aware of the evolution of their profession, its artistic roots and the importance of design – only since the 1950s were some of them willing to play the role of technocrats...).

The rationalist, reductionist nature of Modernism appeared a perfect match for medicine – but before 1945, only a very limited number of modern hospitals and sanatoria were built in Central and Western Europe. Not surprisingly, only the country that was subjected to the most radical social experiment, and one that incorporated revolutionary innovations in public health, triggered the

marriage of Modernism and medicine: the Soviet Union.⁴ Promoting health was a primary goal of the new regime, and soon after the revolution, the Soviet Union introduced the first state medical system in the world. Healthcare was made accessible for everybody free of charge. Deplorable health conditions were blamed on the former capitalist system; the creation of a healthy environment (meant to include its social and political aspects) should help to eradicate diseases. New hospitals were needed nevertheless, and their layout should reflect the new social realities: they were to become “social condensers” of the new epoch. Alexander Grinsberg (1879-1938), a renowned modernist, designed several of them, often in the traditional pavilion type. In Novosibirsk he realized an 850-bed regional hospital in a pure Constructivist style. This architectural language was also prominent in sanatorium buildings and rest homes. They resembled spas and holiday resorts, and many new facilities were built in forests and along the Black Sea coast. Examples are the Kirov sanatorium in Kislovodsk, and the sanatorium for the Leningrad health protection services of the city hall. The flow of modern healthcare buildings petered out after Stalin banned Modernism from the Soviet Union; in about the same time Hitler did the same – both expulsions were to enhance Modernism’s post-war status as a herald of democratic values...

The perfect merger of Modernism and medicine occurred when Modernism became the dominant style in the Western world (and, after 1955, in the socialist empire as well). With the benefit of hindsight, we can state that Modernism could only flourish in a period that cultivated the benefits of rational management, the conviction that politics should guarantee a fair share of the expanding wealth for the lower income brackets, all that against the background of rapid demographic and economic growth, and, finally, the allegedly democratic nature of Modernism – long since unmasked as a myth. On a more practical level, Modernism’s long-standing fascination with mechanical production processes (standardization, repetition) and the management procedures developed in large industries also helped. The modern hospital that thrived between 1950 and 1980 professes to be functionalist building – it accommodates the work of medical professionals and the nursing staff. It is a utilitarian building – its esthetic qualities stem from the way it expresses what the building is supposed to do. In the Netherlands, the term “synthetic modernism” was coined to highlight one of its characteristic features: hospitals combine outpatient departments, inpatient wards and the so-called “hot-floor”, and each component calls for its own specific architectural expression. Thus, the T-type came into being, the horizontal beam accommodating the wards, the vertical one the hot-floor and the outpatient area (which was originally modest in size, but turned out to be fastest growing department in hospitals in subsequent years). The K-type accommodates the hot-floor and the outpatient area (soon to become a separate functional department in the vertical beam), and the two wings dedicated to the patient wards (facing south, it appears to try to catch the sun). The most prolific type, the *Breitfuß* (also

known as *hôpital-arbre*, or *matchbox-on-a-muffin*) tries to find a solution for the demands of medical technology, which improved at an ever increasing speed and called for the continuous adaption of the hot-floor and the outpatient departments. It accommodated all departments that constantly needed to be modified in a low-rise, horizontal volume, and put the patient wards in a slab on top of it. Each part had its own, easily readable architectural expression, and often these buildings are truly beautiful. Esthetics, however, was no longer a goal in its own right – whereas the revolutionary plans of the late 18th century combine mechanical functionality with Classicism-inspired *architecture parlante*, their 20th century counterparts were reduced to functional machines. Even their urban setting seemed to underline its modern nature: hospitals carved islands out of the spaces that surrounded them and dedicated them exclusively to medical professionals, their technicians and the nursing staff; this was seen as beneficial because it allowed them to administer their services without the least interference with the world outside. Thus, even their site stressed the special status they aspired to: set in the urban periphery and surrounded by a belt of no-man's land, the only connection of these inward looking molochs with the world outside was the parking lot. Their isolated setting also appears to underline the ambition, inherent in the medical discipline since the scientific revolution of the 17th century at the latest, to get rid of everything that it sees as incompatible with the world of science. If science wants to be rational, pure, cleansed of everything it deems superfluous, the modern hospital is its most perfect representative.

Now these buildings have become obsolete in many ways, and one aspect that deems them the relics of a dead past is the growing awareness that the basic assumption that defined them is mistaken. They represent an extreme position in the debate on the best possible, scientific ways to position ourselves in our environment: the natural sciences (in the form of medicine) provide the only valid way to understand human life (in all its aspects). If hospitals are medical facilities with health as their core business, this seems to imply that health, ultimately, is a medical quality – but this assumption already leads to a world of contradictions and misunderstandings. The World Health Organization (WHO) claims that medical infrastructures account for only 10% of public health.⁵ Public health is best served with an environment that facilitates healthy lifestyles – walking, cycling, healthy food, social support, a myriad of characteristics none of which is medical. (This, of course, does not imply that states should stop spending their health budget on medicine and channel it to urban planning, public housing instead: rather, the WHO makes a case for what it calls “health in all policies”: in all policy domains, health should become one of the primary objectives.) If people need to be hospitalized, the building should offer a lot more than a functional machine. Since the 1980s at the latest, the design qualities of architecture have been rediscovered as an important factor in people's healing processes – thus an aspect that had been conceived as inherent in the expression of function was again complemented by

design features that were functional at a different level. Even though many modern hospitals are still in use today, we should begin to think about them in terms of cultural heritage. And if we do, we should incorporate the historical (but intangible) values inherent in the position they represent in a matter of fundamental importance: how people position themselves in their social and natural environment.

Notes

- 1 Noor Mens, “The Building Type and its Emergence”, in *Hospitals. A Design Manual*, Basel, 2018, 42–52.
- 2 Michel Foucault, *Naissance de la Clinique: une archeology du regard medical*, Paris, Presses Universitaires de France, 1963.
- 3 Noor Mens, Cor Wagenaar, “Amerika: het nieuwe Duitsland? Of Duitsland: het nieuwe Amerika?”, in *Stadsperspectieven. Europese tradities in de stedenbouw*, Nijmegen, 2015, 160–183.
- 4 Yuri Slezkine, *The House of Government. A Saga of the Russian Revolution*, Princeton, Woodstock, 2017, 276.
- 5 World Health Organization, “Progress on Health Equity Is Stalling across Europe; New WHO Report Reveals Gaps Can Be Reduced within the Lifetime of a Single Government.”, World Health Organization Regional Office for Europe, 10th September 2019.

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Cor Wagenaar

(1960) Full professor in the history and theory of architecture and urbanism at the University of Groningen, head of the expertise center architecture, urbanism and health (a-u-h.eu) and president of the scientific board of the European Network Architecture for Health (enah.eu).



Rudolf Steiger, Flora Steiger-Crawford (restoration Alfredo Orlando Piña), Bella Lú Sanatorium, Montana, Switzerland, 1927-1930 (restoration 2004-2005), south facade. © Philippe Grandvoinnet, 2004.

Sanatoriums in Europe: Build Heritage and Transformation Strategies

BY PHILIPPE GRANDVOINNET

Sanatoriums are an emblematic program of the Modern Movement in architecture. Prolifically built in Europe between 1900 and 1950, they constitute today a remarkable architectural heritage whose technical, functional and spatial qualities are well documented. Since the decline of tuberculosis after the WWII, those sanatoriums that were not demolished have been constantly transformed and reused. Although iconic sanatoriums benefited from meticulous restoration, guided by precise historical and technical knowledge, much remains to be done to explore and develop the reuse potential of these buildings.

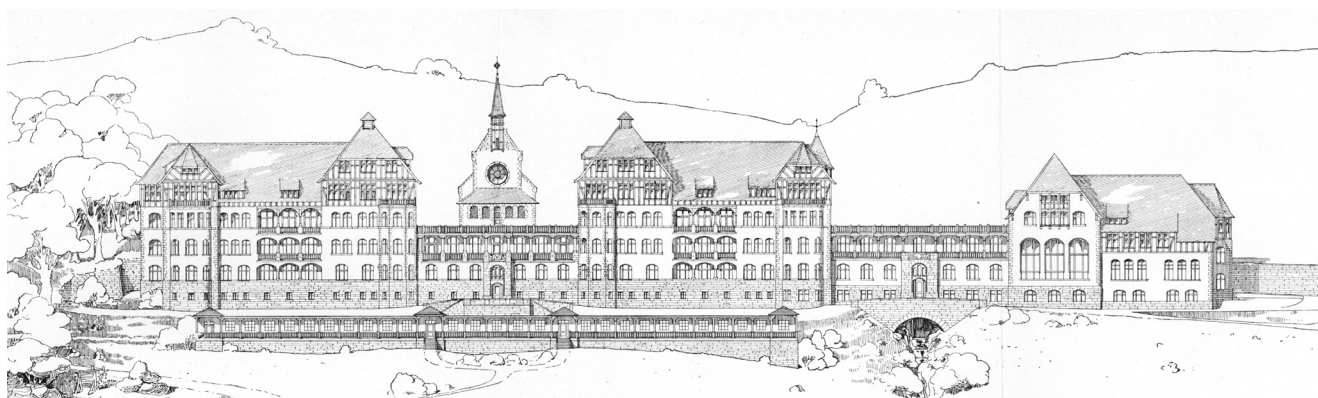
The creation of sanatoriums at the end of the 19th century is a direct consequence of scientific progress in the knowledge of tuberculosis. In 1865, Jacques-Antoine Villemin (1827-1892) demonstrated the contagiousness of the disease and laid down the fundamentals of anti-tuberculosis prophylaxis.¹ Physicians remained, however, skeptical because tuberculosis was still poorly understood. The works of biologist Louis Pasteur (1822-1895) and Robert Koch (1843-1910), who succeeded in 1882 in isolating the bacillus responsible for the disease, completed the medical re-evaluation of the old “phthisis”. In France, the Academy of Medicine definitively abandoned the word “phthisis” in 1891 in favor of “tuberculosis”. It became then possible to embark on the path of rational treatment, the principle of which was simple: strengthen the body to enable it to fight against the Koch bacillus. This ambition – none less than Health – went far beyond the only challenge of treating tuberculosis: it concerned the body as a whole and aimed to transform the built environment for the benefit of hygiene and health. At the beginning of the 20th century, the basis for tuberculosis treatment in sanatoriums were laid and sanatoriums appeared as an architectural translation of medical knowledge.

The therapeutic process implemented in sanatoriums was precise: subject to a triple cure of air, rest and appropriate food, patients were put in optimal conditions to overcome the tuberculosis infection. This cure constituted, until the 1950s, the fundamentals of the sanatorium therapeutic method. Sanatoriums offered an aseptic environment, which joined hygienist theories developed in the 19th century, in which patients may cultivate – so to speak *in vitro* – their health. A new hygiene and health culture arose in sanatoriums at the beginning of the 20th century, which explains why the program was so much politically supported. For architects it was an opportunity

to work around formal constraints of academic references and develop a new architecture more in touch with basic human needs. Sanatoriums have been, to this extent, a “laboratory of modernity.”²

Pioneers in health architecture

From 1895 and the creation of the *Deutsche Zentralkomitee zur Errichtung von Heilstätten für Lungenkranke* [German Central Committee for the Construction of Sanatoriums for Tuberculosis] Germany assumed a leading role in the development of sanatoriums in Europe. The first German public sanatorium was opened in 1897 in Oderberg, with financial support of health and invalidity insurance funds. In Europe, the fight against tuberculosis found a golden age at the turn of the century: after a series of national conferences, the first *International Conference on Tuberculosis* was held in 1899 in Berlin. A year after Germany presented more than one hundred and fifty sanatorium plans at the *Paris Universal Exhibition*. Still in 1900, the first international architectural competition for sanatorium design was organized on the occasion of the *Naples Hygiene Exhibition* in Italy: 38 projects were received, divided by the jury into three types of proposals: suburban plan, unique building, mixed formula combining several pavilions brought together by galleries according to the model commonly used in Switzerland and Germany. In Italy, this competition had little impact when the first Italian public sanatorium, Sanatorio Umberto I, was built between 1905 and 1910. The competition organized in 1902 for the construction of the King Edward VII Sanatorium in England had a more significant effect: announced in the international medical press it brought together one hundred and eighty participants from many countries. Two types were predominant: the pavilion type in use in England and in the United States, and the compact or mixed type that spread from Germany



01 Heino Schmieden and Julius Boethke, Beringhausen Sanatorium, North Rhine-Westphalia, Germany, 1901-1904, south facade. © Weltzien, Viktor von, "Lungenheilstätten", in J. Durm, E. Hermann, E. Schmitt, *Handbuch der Architektur. Entwerfen, Anlage und Einrichtung des Gebäude*, Vierter Teil, 5. Halb-Band, 2. Heft: *Verschiedene Heil- und Pflegeanstalten*, Stuttgart, A. Bergsträsser, 1903, 2nd edition.

and Switzerland in continental Europe. In 1903, architect Viktor von Weltzien (1836-1927) published in the German *Handbuch der Architektur* a chapter dedicated to sanatoriums (*Lungenheilstätten*) which would become a reference until the 1920s.³ The largest German sanatoriums were being built at this time and architects started to specialize in this field, such as Heino Schmieden (1835-1913) and Julius Boethke (1864-1917) who built some of the more significant sanatoriums in Germany. There were about forty public sanatoriums in Germany in 1900 and more than one hundred in 1913. Published in 1913 by the physician Johannes Nietner (1828-1874), the guidebook *Deutsche Lungenheilstätten in Wort und Bild*⁴ made it possible to measure the extent of the achievements over a short period of fifteen years.

In France, after a few experiments, the first public sanatoriums opened in 1900 near Paris and Lyon. They were built on German patterns, with pavilions forming a U-shaped plan in order to protect the patients from the wind. However, these initiatives remained rare and there were only a dozen public sanatoriums in France in 1914. Like in many other countries, tuberculosis became of national importance during WWI, when civil hospitals had to admit hundreds, then thousands of tubercular soldiers sent back from the front. Temporary hospitals were created in existing buildings consisting mainly of religious estates confiscated from the church after the 1905 French Law on Separation of Church and State. In 1917, the French Government decided to distribute these temporary military hospitals, all over the country, the embryo of a national antituberculosis network, open to civilians. On 7th September 1919, the French Sanatorium Law obliged the Departments, as local authorities, to organize and pay for the treatment of tuberculosis patients who had no resources. This law was the beginning of an intense period of sanatorium construction. The director of Bligny Sanatorium from its opening in 1903, Louis Guinard (1864-1939), published, in 1925, a reference guidebook for sanatorium design and management, *La Pratique des sanatoriums*,⁵ based on twenty-five years' medical experience in a first generation sanatorium.

At the end of WWI a new era of mass tuberculosis treatment started, which took place in buildings designed as "healing machines", and for which was expected a therapeutic efficiency that was worth the money invested. This is an important paradigmatic shift: originally exclusively of medical interest, sanatoriums became technical and architectural objects, but also symbols of a new architectural culture at the interface of health and construction. This movement was supported by new anti-tuberculosis legislation: in Italy the 1928 Sanatorium Law permitted the construction of more than fifty sanatoriums in a short period of ten years; in Finland the 1930 Sanatorium Law promoted the construction of eight sanatoriums including Paimio (1929-1933, Alvar Aalto architect).⁶

An architectural type

Sanatorium architecture evolved considerably between the end of the 19th and the middle of the 20th centuries. Initial architectural patterns, developed in Germany, consisted of either a U-shape hospital-like building or separated pavilions facing South. Open air galleries were at this time scattered in sanatorium parks or placed in the front of the ground floor of the building. This is a type adopted in the first public sanatoriums in Germany, Switzerland and many other countries, like in France (Hauteville Sanatorium, 1900), and which remained in use until WWI. The beginning of the 20th century is also characterized by an abundance of architectural experiments, based on sometimes contradictory health recommendations: some practitioners recommended concentrating all the functions and services in a single building, in order to facilitate its functional use and reduce patient displacement. On the contrary, others recommended spreading patients in small pavilions to offer them a maximum of air and light.

At this time, the cottage sanatorium type was very widespread in the United States (Trudeau Sanatorium, 1885) and in England (Papsworth sanatorium village, 1911). It was also used in France in the early 1920s with the financial support of the Rockefeller Foundation. Plougonven cottage sanatorium (architect Alfred Louppe) opened in 1923 in Brittany,

and Praz-Coutant village Sanatorium (architects Aristid Daniel and Lucien Bechmann) opened in 1926 in Savoy, are two architectural achievements of this type. In the 1920s more compact buildings became predominant in sanatorium architecture, with a characteristic inverted T-shaped plan, including a long wing of rooms facing South and a transverse wing of services located at the back. This plan would remain typical until the 1950s.

Open air treatment was practiced under a shelter or a gallery which could be either independent of the building itself, connected to it or even integrated with it. These three kinds of fitting led to different architectural types: in the first case, any existing building was suitable for housing patients and it was sufficient to build independent galleries nearby. On the contrary, a new construction became necessary when the galleries were connected or integrated with the building.

The debate on the benefits of mountain climates was never closed: for many practitioners, only the strict curative discipline in a sanatorium was efficient, and if an appropriate climate could improve the expected benefits, it was only a secondary factor. The essential point was to protect the consumptives from rain, wind, excess of sun and air pollution. Consequently, sanatoriums were established in well-oriented sites naturally protected from the wind. On plains, the protection offered by a forest could be sufficient, as in the mountains a sheltered southern slope sufficed. Because the French Sanatorium Law required each Department to ensure the treatment of its consumptives, sanatoriums were being built in all regions, with the exception of the seaside that was contraindicated in the treatment of pulmonary tuberculosis.

On the plain, a location which presented little constraints, sanatoriums could be elongated to offer each room the air and light conditions requested by the treatment. These buildings had a horizontal organization, with up to three floors. This type was very common in the early 1930s, with sometimes extreme developments. Many large public sanatoriums belonged to this type, among them the five hundred meters long Petit-Arbois Sanatorium (Gaston Castel architect, 1936) in Provence. In the mountains, the construction of a sanatorium needed to take into account specific constraints like climate (extreme temperature variations, snow), ground instability and difficult access conditions. The architect's answer to these constraints was to construct compact buildings that rose vertically. For Martel de Janville Sanatorium (Savoy), the architects Pol Abraham (1891-1966) and Henry Jacques Le Môme (1897-1997) designed in 1932 an asymmetrical building consisting of an elongated wing of five floors and a "tower of rooms" of 10 floors.⁷ This high-rise sanatorium type, made possible by the use of a reinforced concrete frame, can be considered as specifically alpine. It offered several advantages: reduction of earthworks and foundation costs, and an increase in the thermal inertia that facilitated heating.⁸ This compactness, prevalent in high-altitude sanatoriums, necessitated grouping all functions within a single building and thus articulating various program elements together.

It sometimes led to a technical *tour de force*, made possible by the use of reinforced concrete: in Martel de Janville the south facade of the tallest wing is carried by the concrete arches of the dining room.

Another type of sanatorium derived from German patterns is the terrace type. This type was theorized in 1902 by German physician David Sarason who obtained an international patent for "a new type of construction for hospitals and sanatoriums", so called *Terrassen-System*. In France, the Franco-American Sanatorium project designed by Tony Garnier (1869-1948) in 1917 to accommodate five thousand tuberculosis patients, used a large scale terrace type. Richard Döcker (1894-1968) published in 1929 his book *Das Terrassentyp*⁹ which had a strong influence in Europe. In France, the terrace type was very successful at the end of the 1920s in ambitious projects such as Versailles Sanatorium (Bailly and Saacke architects, 1931, unrealized), Aincourt Sanatorium (Edouard Crevel & Paul Decaux architects, near Paris, 1933), Bodiffé-en-Plémet Sanatorium (Britany, Louis Feine and Paul Tournon architects, 1933), Bodélio Hospital (Brittany, Maurice Puteau architect, 1935) or Guébriant Sanatorium (Savoy, Abraham and Le Môme architects, 1933).

Guébriant Sanatorium is the most renowned of them. The building consisted of a succession of terraces, with six floors. The bactericidal action exercised daily by the sunlight on the floors and walls was explained in the review *L'Architecte* with a series of photos showing a ray of light "disinfecting the room by traversing it during the day."¹⁰ Terraces were actually considered as an instrument of health, because they made possible to "achieve, without effort and without difficulty, automatically (...) the permanent asepsis of all parts of the sanatorium."¹¹ If terraces could really improve the treatment, their building cost had been a strong impediment to a further development in sanatorium construction.

Architectural heritage

Sixty years of public antituberculosis health policy had left Europe an important built heritage. Nowadays we can appreciate the architectural qualities of these buildings, but also their fragility. In France, about three hundred and fifty sanatoriums were built. We can still perfectly identify these buildings because of their typological characteristics: south orientation, thin shape facilitating the penetration of air and light, open air galleries. These characteristics are the most visible hallmarks of sanatorium architecture and distinguish them from all other types of health construction. The strong identity of these buildings comes from the efficiency of their architectural and technical features. The facade, the plan and the interior fittings of a sanatorium together formed the elements of a complex hygienic mechanism, whose first objective was to improve the therapeutic efficiency of open-air treatment by offering appropriate healing conditions. Sanatoriums were not designed as hospitals and it was a deliberate choice: since patients could stay there for months or years, buildings were designed in order to make life more comfortable, avoiding any hospital reference. Physicians and architects were concerned for patients'



02 Joseph Bardin and Marcel Favier, La Musse Sanatorium, Arnières, Normandy, France, opened in 1933, south facade of a pavilion. © Post card, private collection.



03 Jan Duiker, Bernard Bijvoet and Jan Gerko Wiebenga (restoration Hubert-Jan Henket and Wessel de Jonge), Zonnestraal Sanatorium, Hilversum, Netherlands, 1926-1928 (restoration 2000-2003), central pavilion under restoration in 2003. © Philippe Grandvoinnet.

well-being, for whom a special effort was made to create a pleasant living environment.

Open-air treatment was abandoned after WWII and sanatoriums started to decline.¹² The buildings had then to be adapted to new technical standards, and many of them lost then the “architectural sincerity”¹³ which was the basis of their design. In France, sanatorium conversion started in the late 1960s when antibiotic therapies emptied the buildings of their patients. Initially, these conversions had a limited impact on the buildings, which were simply dedicated to the cure of other kinds of patients. Their architectural transformation really started in the 1990s due to the aging of the buildings and equipment, and the evolution of medical techniques. But without a systematic inventory, public administration or architects could not identify what had to be preserved as a heritage.¹⁴

The creation in 1999 of the label “Heritage of the 20th century” by the Ministry of Culture (France), which became labeled in 2016 as “Remarkable Contemporary Architecture”, made it possible to change the way in which sanatoriums were perceived. About twenty of them have been labeled since then, which has helped the recognition of their architectural qualities. Therefore, transformation strategies could be developed taking into account the architectural type, the structure and characteristics of the buildings.

Icons restoration

At the turn of the millenium, the restoration of sanatoriums which were Modernist icons started, related to legal protection measures. Sanatorium Zonnestraal (Jan Duiker and Bernard Bijvoet architects, Jan Gerko Wiebenga engineer, 1925-1931), in Hilversum (Netherlands), is an emblematic achievement of the architectural avant-garde of the 1920s. Listed in 1995 on the provisional list of nominations for United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage for the Netherlands, the building was carefully restored by Hubert-Jan Henket (1940-) and Wessel de Jonge (1957-) who developed for the project a unique technical, historical and critical apparatus. If such a restoration would

have probably not been possible in another context and could hardly be applied to other sanatoriums, mainly for economic reasons, it still offers an exemplary and well-documented¹⁵ methodological framework which can inspire any transformation or restoration project. Sadly, the Dutch Minister of Culture has decided in 2019 to withdraw sanatorium Zonnestraal from nomination on unclear grounds. Many, among **docomomo** have protested against this unjustifiable decision, up to now without success.

Paimio is another emblematic sanatorium, a masterwork of the Finnish architect Alvar Aalto (1898-1976). Opened in 1933, it was turned into a hospital in the 1960s and protected in 1993. With the technical support of the Alvar Aalto Foundation, a repair and maintenance program was inaugurated in order to preserve the architectural characteristics of the buildings (nature of materials, colors, furniture), while ensuring the proper functioning of the medical activities.¹⁶ The preservation of elements of architectural or technical interest was integrated into the intervention program that was implemented in stages. It concerned, in particular, the improvement of comfort conditions and the upgrading of equipment, according to the needs of the hospital. This program guaranteed the overall coherence of the conservation project and the long-term vision of what would otherwise be only a succession of isolated interventions. Like Zonnestraal in 1995, Paimio was listed in 2004 on the provisional list of nominations for UNESCO World Heritage for Finland and the repair and maintenance program was upgraded in 2016 into a Conservation Management Plan by the Alvar Aalto Foundation in order to guide the future use, care and conservation of the building. The building's owner, the Hospital District of Southwest Finland, announced in 2018 its intention of selling it, and an inquiry into the future of Paimio was launched by the Finnish government “to draw up a proposal for an economically viable model for covering the site's maintenance and operating costs.”¹⁷

Bella Lui Sanatorium was built in Montana, Switzerland, in the late 1920s by Rudolf Steiger (1900-1982) and Flora Steiger-Crawford (1899-1991), with an innovative metal structure whose elements were assembled by soldering.



04 Alfonse Arati and Marcel Boyer, Rhône-Azur Sanatorium, Briançon, France, 1951-1957, south facade. © UGECAM PACA.



05 Pol Abraham and Henry Jacques Le Même, Martel de Janville Sanatorium, Le Plateau d'Assy Savoy, France, 1932-1937 (restoration 2005-2008), south facade after the restoration works in 2010. © CAUE 74, Romain Blanchi.



06 Albéric Aubert (restoration Pierre du Besset and Dominique Lion), Sabourin Sanatorium, Clermont-Ferrand, France, 1931-1934 (restoration 2010-2015), south facade. © Philippe Grandvoinet, 2016.

Due to the development of a ski resort, the sanatorium was transformed in the 1930s into a hotel, but most of its original facilities had been preserved until the completion of transformation works in 1992. The aim of these works was to bring the building up to hotel standards, notably by creating bathrooms in the bedrooms and installing soundproof partitions. The original furniture disappeared then and the steel window frames of the dining room were replaced by plastic frames. The replacement of the original frames should have been continued in 2001, when a global consideration of the preservation of the building started after the recognition of its architectural qualities by the cantonal administration of Valais. Under supervision of the architect in charge of the project, Alfredo Orlando Piña, and local authorities, a protocol for the restoration of the south facade of the sanatorium was defined, based on a careful diagnosis of the existing materials and elements. The objective was to keep as much original material as possible: the damaged concrete surfaces were cleared by micro-demolition to a thickness of 3 to 4 centimeters, sufficient to install formwork and reinstate the surface; the carbonated concrete received a re-alkalinizing chemical treatment to protect the steel from corrosion. The slope of the balconies was corrected to facilitate drainage of the water and thus eliminate recurrent infiltration of the rooms. A chromatic study concluded that the facade was initially covered with a yellow ocher mineral paint, which was reinstated at the end of the work in 2004. This intervention is the result of a project based on a careful selection of the elements to be preserved and those that can be repaired or replaced. Even if this restoration was limited to the south facade of the building, the added value was broader: not only was the exceptional quality of the building recognized on this occasion, but it also enabled the owner-manager to re-evaluate its commercial positioning: Historic Bella Lui 1930 Hotel is now part of the Swiss Historic Hotels network as a “living witness to modern architecture.”

Pragmatic rehabilitations

In these study cases legal protection was helpful in the restoration process. In France, three sanatoriums have been listed as monuments; including the Martel de Janville Sanatorium in Savoy, the Sabourin Hospital and Sanatorium in Clermont-Ferrand. Built by Pol Abraham and Henry Jacques Le Même, Martel de Janville¹⁸ was finally closed in 2006. It was immediately listed as a monument. Located between Geneva and Chamonix, facing Mont-Blanc, the building was acquired by an investor with a project for a residential building of one hundred and twenty apartments. Thanks to the legal protection the investor could write off part of the restoration costs. Nevertheless, the reuse project had to face economic constraints and heritage requirements. The restoration of the south facade in its original state in a “light terracotta red” color was consensual, but the north facade was transformed and enlarged because the building was considered too thin for residential use. The original window frames, designed by Jean Prouvé (1901-1984), were also replaced. The reuse of common services in

the building was another challenge: the chapel at the top of the building was restored to its original state, but the monumental dining room on the ground floor was converted into duplex apartments. Although the volume and appearance of the building have been largely preserved, this project raises the question of the adequacy of a transformation program within existing spaces.

The transformation of Sabourin Hospital and Sanatorium in Clermont-Ferrand, built in 1934 by Albéric Aubert (1895-1971), is a very different case. The use of a reinforced concrete frame allowed the superposition of levels totally different in their architectural organization (with dormitories and rooms, different kinds of open-air galleries). This unique achievement was a *pot pourri* of what was seen at that time as the best architectural features in sanatorium architecture.¹⁹ It was transformed into a hospital in the 1960s and started a steady decline in its activity, until its closure in 1997. Its demolition was then considered, but the building was listed as a monument in 2000 and bought in 2002 by the Ministry of Culture, which planned to transfer it to the school of architecture located in the city center. An architectural competition for its transformation was launched in 2007, with a program of 7000 m² and a budget of about thirty million euros. The winners of the competition were the architects Pierre du Besset (1949-) and Dominique Lion (1954-). The restoration of the south facade in its original layout was required, but other parts of the building could be adapted to the needs of the program. Transformation of a health institution into a higher education building is a challenge, because these two programs have nothing in common in terms of space and use. The difficulties were also increased by complex technical constraints, in particular those related to accessibility and earthquake protection. Because of the shape of the building – long and thin – its earthquake resistance could not be guaranteed and it led to a radical solution: the internal structure of the building was completely demolished and rebuild with a three-dimensional earthquake-proof framework made of concrete and steel. Emptied of its original structure the building lost almost all of its original interior fittings. The internal distribution was also modified: the circulation was moved to the South and constituted an intermediate space which preserved the teaching rooms from sun and heat.

These projects, despite the difficulties, allowed the preservation of the buildings. Many other sanatoriums were abandoned or demolished, like the three sanatoriums of Saint-Hilaire-du-Touvet, near Grenoble, where medical activity definitely stopped in 2009 (demolished in 2018). Briançon, set up on the Italian border, presents in this respect an interesting situation. It is a dynamic ski resort, and has a remarkable architectural heritage: the Vauban fortress built in the 17th century was listed on the UNESCO World Heritage list in 2008. Since the 1920s, Briançon has also been an important open air treatment center and is still recognized today as a Health City by the World Health Organization. The first sanatorium in Briançon was built in 1928 by the Army on the terrace of a 19th century fort located inside

the UNESCO perimeter.²⁰ It was labeled “Heritage of the 20th century” in 2013 and transformed into a housing estate by a group of inhabitants. There are about ten other sanatoriums in Briançon, most of them located in the former climate zone dedicated in the 1940s to the treatment of tuberculosis, like Rhône-Azur one of the last sanatoriums built in France. It recently led the municipality to develop a strategy for promoting climate heritage and raise awareness among residents and tourists about the architectural quality of 20th century buildings. This is an interesting example of a cultural strategy based on recent heritage promotion.

Completed almost twenty years ago the restoration of modern icons like Zonnestraal or Paimio are still relevant today.²¹ Others restoration or reuse projects of sanatoriums have been completed since then, but many other buildings have been recently abandoned or demolished. The transformation process of former sanatoriums continues, with the recent critical support of research projects which have considerably increased historical, architectural and technical knowledge about sanatoriums. The future of these buildings remains, nevertheless, uncertain. Their construction and architectural qualities are now well known, but they now enter, as economic resources, into competition with other typologies of buildings which, in their turn, are experiencing a period of decline and abandonment. In the Alps for instance, climate change is weakening the business model of mid-altitude ski resorts, making transformation projects of hotels and former sanatoriums more and more uncertain from an economic point of view. The choice to restore, transform or demolish is always the result of a technical, economic and political decision. Such a decision must be enlightened by scientific knowledge of architectural history and techniques. In this respect, education and documentation are still major challenges.

Notes

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Philippe Grandvoinnet

(France, 1978) Architect (Versailles School of Architecture, 2002) and historian of architecture. His PhD on sanatoriums (Universities of Geneva and Versailles, 2010) was rewarded by the *Académie d’architecture* in Paris and published in 2014 (*Architecture thérapeutique: Histoire des sanatoriums en France 1900-1945*, Geneva, MetisPresses). As an architect and urban planner of the State he was successively *architecte des bâtiments de France*, head of the Bureau for Architectural Research (Ministry of Culture, Paris) and since 2018 director of teaching and learning at Grenoble School of Architecture (Grenoble Alpes University).



Isadore Rosenfield, Francis Delacfield Hospital, New York, USA, 1948, view west to roof terraces. © Charles Giraudet, 2017.

The New Deal Health Infrastructure of New York: The Hospitals of Isadore Rosenfield

BY CHARLES GIRAUDET

In New York, the New Deal saw the construction of a new breed of hospitals under the direction of Isadore Rosenfield (1893-1980). Though quasi-unknown today, his contribution to the field of hospital design cannot be overstated in terms of the quantity of facilities he built on four continents and the philosophy underlying his activities as an architect, planner and educator. Currently, though, even his most successful buildings are being demolished or converted without documentation. The author examines the context and some issues encountered in his photographic recording of these facilities and looks at their potential considering today's larger challenges.

The New Deal in New York

The Great Depression brought to power a generation of men and women who set out to reform the country on the basis of progressive ideas. When it came to healthcare, they believed that the nation should be taking care of its citizens regardless of their wealth. They also believed that in the process, they'd be building democracy from the ground up.

In New York, under the leadership of then mayor Fiorello La Guardia (1882-1947) and with the support of President Franklyn Delano Roosevelt (1882-1945), this aspect of the New Deal was turned into an ambitious plan: the construction of a world-class hospital infrastructure.¹ Like that of the rest of the country, New York's health infrastructure was outdated and inadequate. Many hospitals dated from the 19th century and an aging population made it urgent to address chronic diseases in particular. In 1939 it was estimated that the country needed 260,000 hospital beds, including 130,000 for mental health patients and 50,000 for tuberculosis patients.

Dr. Sigismund Schulz Goldwater (1873-1942), who had already served as health commissioner in the 1910's and directed Mount Sinai Hospital for 25 years, led the project and gathered the means to achieve it. Isadore Rosenfield (1893-1980) became its architect.

Today the health infrastructure of the mid-century is being re-examined the world over. Aging buildings, as well as the constant progress of medicine and the way it is delivered, are forcing an evaluation of large numbers of buildings that are often spectacular works of architecture but pose significant challenges in terms of their adaptation to new uses and norms. In the United States, this infrastructure is being erased with little consideration for its historical or architectural value. In New York alone, many hospitals of that period have been sold, closed or demolished, and few

have been repurposed. A number of them are left to decay. No documentation accompanies these decisions. Plans are dispersed and all records of life in the facilities vanish.

I am an architect and photographer. For the past seven years I have been photographing the hospitals of Rosenfield.² I became acquainted with him during the 22 months during which I documented Goldwater Hospital on Roosevelt Island while it was being demolished. I had discovered the facility a couple of decades ago as a young architect from France exploring New York. I had been drawn to its angled wings and running balconies reminiscent of the ocean liner architecture of early modernists. I rediscovered it by accident in the Fall of 2013, two months before demolition was scheduled to begin. No arrangements had been made for documentation, which to me seemed surreal, given its remarkable features. The way it rested on its site alone was spectacular, with its four chevrons straddling the island, crossed by a transparent spine a ¼ mile (400 meters) long. It looked like the superstructure of an aircraft carrier, with its hull, the island itself.

Early on, a key decision in the implementation of Dr. Goldwater's plan was made: Roosevelt Island, formerly known as Blackwell Island and then Welfare Island, located in the geographical center of the city, would be turned into hospital territory. It was already home to a number of health facilities, which was common for islands in the Hudson estuary.

As Dr. Goldwater needed a capable hand to oversee the implementation of this plan, he looked into the city's Department of Public Works. A competition was organized for which the candidates were asked to "draw a hospital". One of them, Rosenfield, refused to draw anything before certain questions were answered: What type of patients' conditions and care? What average length of stay?

Goldwater appointed him as his assistant. In this position, Rosenfield became the architect responsible for a program of construction that would include hospitals and a number of ancillary buildings all over the city. In this capacity, he collaborated with and supervised private designers who would be the architects of record for the various projects.

In 1936, the penitentiary just south of the 59th Street bridge was demolished³ and in the following years the island saw the construction of a 600-bed nurses residence, a power plant, a convalescent center, an industrial laundry/garage/fire station and two chronic diseases hospitals (1600 and 2000 beds).

Goldwater

The Welfare Hospital for Chronic Diseases, later renamed, and finally known simply as Goldwater, was the plan's flagship. It was built between 1936 and 1939 with Butler and Kohn, Yorke and Sawyer Arch., an architecture office specialized in hospital design in which Rosenfield had worked as a young architect.

The interest generated by the project and the construction of this first-of-its-kind hospital was tremendous. Science, in its virtuous march, was coming to New York to eradicate the afflictions that struck so many. The progress of Goldwater's construction, its budget (\$8.6 million) and the description of its ambitious program were often discussed in the newspapers.

In a 1938 article titled "The Fruit of Research"⁴ Rosenfield describes the design process:

This hospital is unique in its general plan and disposition of parts. It is based on strictly functional planning, which means that in disposing the parts the first consideration was given to the peculiar needs of chronic patients and administration. This involved the problems of circulation, control, orientation, view, ample ground space. No concession was made to any preconceived notions as to arrangement that would produce a beautiful picture or pattern. The arrangement presented here is frank, honest and straightforward. It was reasoned that if all the parts were arranged in an orderly manner meeting the functional needs, the result would have esthetic wholesomeness. The illustrations bear out the correctness of this assumption.

The patients' wards were organized in two pairs of four-story chevron-shaped buildings oriented south. Each floor housed two wards for a total of 32 wards. In the middle of each pair was a pavilion for visitor access. Works Progress Administration (WPA)⁵ murals decorated four of the solariums.

In the middle of the ensemble a larger building housed the main entrance, admission, administration, therapy offices, surgery, dining halls, kitchens and associated storage, trash processing, reception of merchandise, two floors of residences for medical personnel and technical areas in the basement and the top floors.

North of the campus and at the head of the connecting corridor, a small building was dedicated to research, and also housed the morgue and its adjacent chapel.

The basements contained research labs, all the technical and ancillary activities, storage and workshops for a number of trades. The facility as a whole was designed to function autonomously.

In 1970, a new "activities" building designed by William Lescaze (1896-1969) was added at the south end of the connecting corridor. It contained chapels for four religions, a library, rooms for sports and other activities, a radio studio, large quantities of storage, and a theater with a stage that could be converted into a basketball court.

Following Mayor Bloomberg's decision to remove the hospital to make room for Cornell Tech, a "technology, business, law and design campus", it took 22 months to demolish Goldwater – a complicated endeavor given how well it was built – during which I took close to 20,000 pictures, documenting every room, closet, staircase, corridor, and technical space in the 900,000 square feet (sq. ft) facility, in a constant race against demolition crews. During that time I saw how the building was designed for the comfort of patients and staff. I marveled at the intelligent details and how the space was bathed in natural light. I found out more about the man who had designed it, whose name I first saw on the construction drawings with the modest title of *Research Assistant*.

Isadore Rosenfield

Born in 1893 in Russia near Moscow, Rosenfield emigrated with his family to Boston in 1910 to escape the pogroms. He worked in a frame shop and as a butcher's assistant when his flawless English got him noticed by a wealthy woman who sent him to High School and then to Harvard.

Jane Jacobs (1916-2006) tells us what happened next:

He early discovered that most good ideas float around and eventually die in a sea of talk, but an architect has the special advantage of being in there with his ideas precisely at the time action of some sort has to be taken. This heady discovery switched him in his third year at Harvard from a social ethics major and settlement-house worker into the school of architecture.⁶

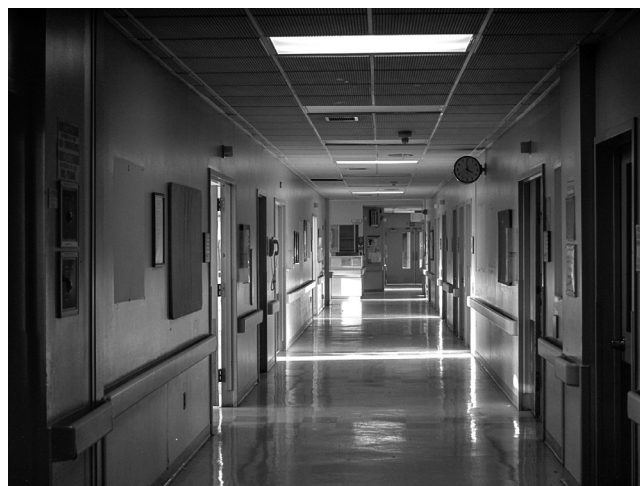
Out of Harvard, Rosenfield worked for several firms specializing in hospital design before he joined New York's Department of Public Works in 1934. In 1945 he left it to open a private practice and remained in charge of the post-war \$100 million public hospital construction program. He retired in 1970 and died 10 years later.

As early as 1932, a large part of his activity was dedicated to teaching and consulting, often pro-bono. He wrote dozens of articles and reports and three reference books. He considered that making better hospitals was a civic duty. At Columbia University he created a master's degree in hospital planning where architects were taught alongside future administrators.

Hardly a household name today, Rosenfield could write of himself in a 1952 letter to the AIA, that "(...) in his thirty years of professional activity, he probably designed or directed the design of more hospitals than any American architect."⁷ At that time, he had built over 66.



01 Isadore Rosenfield with Kohn & Butler, Yorke and Sawyer Archs, Goldwater Hospital, New York, USA, 1939, patients on ward terrace. © Roosevelt Island Historical Society Archive.



02 Isadore Rosenfield with Kohn & Butler, Yorke and Sawyer Archs, Goldwater Hospital, New York, USA, 1939, ward corridor. © Charles Giraudet, 2014.

Principled Design Principles

We can see Rosenfield's method most plainly in his work in Puerto Rico, where he started with a broad assessment of local resources. From there he proceeded with a territorial distribution of health centers and then to the programs of individual hospitals and other facilities, several of which he built. In his second book,⁸ he argues that building hospitals without addressing other issues simultaneously (demand for health services, health education, medical staff training, population income increase, etc.) can be counter-productive because the significant expense of hospital construction can drain limited resources. A project should start with a study of local "conceptions of disease, ideas on what constitutes health, technologies of medicine and building, social forces and esthetic attitudes."^{9 10} He clearly drew on his social science background for methods and ideas on how to integrate this spectrum of concerns and values into his planning considerations. Yet, he saw the architect as uniquely competent in navigating that complexity, provided s/he "understands the health apparatus in its relation to the rest of society in broad terms."

At every scale, there were principles and methods to be considered, and while the latter were systematically questioned and re-evaluated, the former were firm and based on universal human rights, and the belief that human societies existed in order to improve the well-being of their members. These principles were stated so as to inform decisions at every step of the project, and rationally achieve all the progress possible for the minimum cost.

Rosenfield's approach was thus multi-scalar and interdisciplinary. It may well be that, at least in part as a result of his efforts, life expectancy in Puerto Rico went from 46 years in the late 1930s to 70.6 years in the 1960s.¹¹

When it came to a single building, Rosenfield seems to have proceeded under the assumption that architecture

itself was a healing instrument. He was single-minded in the effort to translate the therapeutic imperative into spatial arrangements. His systematic approach led him to re-examine a building's characteristics from its general orientation to maximize sun exposure and relaxing views, to the design of the patient's bed where the medical consultation took place. He often refused his client's assumptions and reformulated them until he was satisfied with the coherence of the program with its goals, and realistic space allocations had been made. The design followed this extensive programming phase.

Rosenfield also developed systems of metrics to integrate his research into program elements and dimensions. Calculations were used both to generate and verify hypotheses based on experience. For example, the number of patients multiplied by a patients' average stay yielded a number of visitors per day. That number was then used to determine the sizes of lobbies and elevators, but also to help gauge the need for and nature of recreational facilities. It is important to remember that while many of these methods may seem standard today and have turned into norms (think of the asymmetrical patient bedroom door¹² for instance, which Rosenfield developed at Beth-El), they were innovative at the time and allowed for the rational development of an entirely new generation of hospitals. They also placed the architect at the center of the planning process rather than relegating him/her to the role of a mere decorator, thereby avoiding costly mistakes.

In Rosenfield's projects, the plan grew out of a circulation pattern designed to give patients the fullest access possible and staff the most effective working conditions. In Goldwater, the connecting corridor functioned as a street, with the wards intentionally as dead ends. Entrance pavilions split the flow of visitors and provided lounges for visiting. Balconies, roofs and gardens were in most cases within a few feet of anywhere in the building.



03 Isadore Rosenfield with Kohn & Butler, Yorke and Sawyer Archs, Goldwater Hospital, New York, USA, 1939, view south to ward buildings A and B from administration building E. © Charles Giraudet, 2014.



04 Isadore Rosenfield with Pope, Eggers & Higgins, Triboro Hospital, T-building, 1941, balcony view at sunset. © Charles Giraudet, 2016.

His hospitals were carefully designed for growth, with extensions anticipated. This could mean the future addition of research labs, or the rearrangement of the circulation, as illustrated by the easy siting of the J-building in 1970 at Goldwater. Another example would be the boiler room in Delafield Hospital, which was built to become the base-moment of a new five-story building erected twenty years after the first building. In general, Rosenfield was a believer in developing hospitals horizontally as opposed to vertically to take into account the economy of building and maintenance, the ease of planning, operation and expansion, and to “avoid the pitfalls of monumentality.”³

The buildings I have observed up close all shared state-of-the-art construction in workmanship and materials. Goldwater was built with 2,700 windows in bronze (for its low-maintenance and self-lubricating properties), marble and glazed brick partitions, etc. The structure was concrete and steel with two layers of masonry enclosing an asbestos layer for waterproofing. Wood was solid and paneled, with generous sections and fine details.

Of particular note is Rosenfield’s unwavering attention to light, a lifelong interest of his that reflected the heliotherapeutic ideas of the pre-antibiotic age. Patients would have access to windows, balconies, terraces, roofs and solariums, but so would doctors, surgeons, cooks, and other staff. He argued eloquently for these accommodations on the basis of best performance, comfort, health benefits, and went to great lengths to provide natural light to all the spaces where humans were working, including the basements, that he would position in elevation so they could take advantage of the natural movements of the site for window placement.

We can see from these design principles that for Rosenfield, patient care was more than a medical endeavor. Jane Jacobs wrote that “His notion of functionalism is elastic and extends to the emotional content of the hospital.”⁴ He saw health holistically, and this is particularly obvious in his chronic diseases hospitals, where patients might spend years or even a lifetime.

As a photographer wandering through empty wards, and later through interviews with staff and patients, I became

convinced that Rosenfield sought to create the conditions for the emergence of a community, though he doesn’t specifically talk about it. Solariums and circulation spaces played a particular role in this. In their architectural formulation, they make clear that their *raison d’être* is to serve for social activities beyond the confines of the purely medical aspects of care.

In fact, one of the more intangible yet clear characteristics of Rosenfield’s buildings is the genuine affection they elicit in the people who live in them. A policewoman told me how she used to love walking the long corridor in the silence of the night, looking out at the city on the other side of the river. A doctor said that for her, Goldwater was like “a happy bubble”. A former facilities director came after hours to open doors for me so I could take pictures of the building he had maintained for 30 years. Talking about the adjacent power plant, another gorgeous Rosenfield building now closed, an engineer said to me in a lowered voice, “We took good care of that place.” During its 70 years of service, Goldwater was profoundly loved by both its patients and staff. Its demolition, which forced the dispersion of the community, was traumatic and experienced as the loss of a home.

It is difficult to point to anything specifically that could explain such affection, but Rosenfield’s buildings exude a feeling of respect in the way they anticipate the bodies of their inhabitants, whether ambulatory or wheelchair bound, who might look out a window in the middle of a workday, gather in a solarium for an activity with other residents, or make a difficult day less so by taking in the light and the spectacular views.

As I walked through Goldwater, the T-building, or Delafield, I often felt a point of rest, a moment of silence made into space, something I have experienced rarely and only in the best of architecture. It was unexpected in this context. Comfortable dimensions and proportions, a reliance on geometry to define the spaces, transparencies, and a rhythmic unfolding of planes made taking pictures remarkably easy. Ilya Bolotowsky’s (1907-1981) WPA mural in one of the solariums captured the elegance beautifully.



05 Isadore Rosenfield with Alfred Hopkins & Associates, Bellevue Nurses School and Residence, 1954, auditorium. © Charles Giraudet, 2019.



06 Isadore Rosenfield with Kohn & Butler, Yorke and Sawyer Archs, Goldwater Hospital, New York, usa, 1939, solarium. © Charles Giraudet, 2014.



07 Isadore Rosenfield with Kohn & Butler, Yorke and Sawyer Archs, Goldwater Hospital, New York, usa, 1939, view west to Manhattan from ward building C. © Charles Giraudet, 2014.



08 Isadore Rosenfield with Kohn & Butler, Yorke and Sawyer Archs, Goldwater Hospital, New York, USA, 1939, motor room. © Charles Giraudet, 2014.



09 Isadore Rosenfield with Starrett & Van Vleck, Archs, Roosevelt Island Power Plant, New York, USA, 1936, catwalk to the boilers. © Charles Giraudet, 2015.

Documentation Challenges

The work I did at Goldwater became the template for my documentation process: the photography would follow two axes, one systematic, where I would enter each room and record its characteristics, and one intuitive, where I would record the architecture changing in time, as a witness. The body of images provides a photographic matrix of the building echoing its vanishing body. I believe everything that happens in a building connects in some way to its architect, including the most dramatic phases of its life: construction and demolition.

To document these buildings, a number of obstacles have to be surmounted that reveal aspects of their architecture and of the larger context that determines their fate. To begin with, they're very large: 900,000 sq. ft (83,600 m²) for Goldwater, with 800 rooms for the wards alone. There isn't much repetition in the spaces, making it rewarding to walk through every door, a time-consuming process. When rooms are left abandoned, locked or walled-up, they're often worth the extra effort to get them open. In the T-building, one of these was the sterilization room, an essential function in a tuberculosis hospital. It was intact despite the crumbling plaster walls. In Delafield, a walled-up staircase was opened for me where no one had penetrated for 40 years. The original architectural metalwork removed elsewhere was still present there, along with a row of antique generators and an air handler that was still churning unbeknownst to the maintenance staff.

The laws that protect patients' privacy and forbid access to the daily activities in a hospital while it is in operation create another obstacle. This means that the only documentation possible is of the traces of these activities, if any remain within the space after decommissioning.

All of these hospitals have been transformed to some degree since they first opened, yet little to no effort has gone into maintaining an orderly record tracing the changes. In most instances, plans are missing altogether. I routinely find myself correcting or re-establishing layouts, if only to key pictures to spaces. The improper record keeping is also costly in terms of maintenance and implies reliance on staff memory. (A plumber once called me for help on locating a riser!)

But by far the most vexing obstacle is that of access itself, a difficult and unpredictable process rooted in the widespread indifference to the history and architectural worth of these buildings, and the politics that revolve around them. The unusual nature of a request for documentation makes administrators suspicious as it may challenge the boundaries of their job descriptions or contradict the narrative for a building's conversion or demolition.

Heritage is a term more often used, though it doesn't carry the same connotations of potential, and in any case, it is almost never used when talking about health facilities. These are seen as essentially functional fixtures in the urban fabric, in implied contradiction to their role as anchors of civic life and associated historic significance. "This is not the way we do it here!" is an answer I am often given when I ask why re-purposing was not looked at as a serious alternative to demolition. Behind this honest statement, sometimes delivered with resignation or a tinge of guilt, lies a whole culture and powerful vested interests, that would be useful but outside the scope of this article to examine.

The State of Things

After the demolition of Goldwater Hospital (1939-2015) was completed, a demolition manager bragged to me that "not a piece of it larger than an eighth of an inch remains on site." Apart from my own, I am not aware of any efforts to gather evidence of what this hospital has meant for the city and the people who lived and worked in it.

The power plant of Roosevelt Island is now abandoned. Its spectacular interior is deteriorating, with animals having damaged the pipe's asbestos protection. There are no plans for its demolition or re-purposing.

The T-building of 1941, sold by the city, as was Goldwater, for \$1, is currently being transformed by a private developer into a mix of affordable and middle-income housing.

The Delafield Hospital, 1950-1975, was transferred to New York City Housing Authority (NYCHA)¹⁵ in 1984. It is now home to independent elderly people and their families. It is on its way to privatization under Mayor de Blasio's plan to reduce NYCHA's deficit. Once in private hands, it will all but certainly be demolished given the value of its site.

The luxurious Nurses' School and Residence (1954) just

south of Bellevue Hospital, with its ground floor clad in pink marble, is still operating as it was intended but is slated for imminent demolition so the site can be turned into a \$200 million Department of Sanitation garage. This gem of a facility, with most of its finishes and architectural features intact, is a time capsule of its era, yet even the people who argued against its demolition never mentioned its architecture as worthy of preservation. It has not been documented to date.

Of all the facilities on Roosevelt Island, Coler Hospital is the only one still in operation, though at half capacity. There is talk of its sale to help finance the deficit of the New York's Health and Hospitals Corporation, its parent administration.

The list would be too long of the buildings already demolished or abandoned. There are few that are still in operation, such as the main building of Kings County Hospital or the nurses' residence at Queens General, and a scattering of ancillary buildings. Seventy years after the city built itself an infrastructure that was the envy of the rest of the world, most of it is in the dumpster, without public debate or documentation.

* * *

Rosenfield often included the following words under his name to summarize his vision of architecture: "To him, architecture is primarily an instrument for the promotion of social well-being and making Democracy a reality."

The hospitals of the New Deal are a testament to the excellence of the work of a civic-minded generation, to their ideas, ideals, and their wisdom, for whom Rosenfield stands as a singular example, modest and ambitious, talented and farsighted. Those who gave us this infrastructure built it so that it could serve not only their own, but also future generations. Yet, although these hospitals were once heralded as great achievements and a source of civic pride, there is little chance that any of them will still be standing in thirty years. All of them are already threatened.

The speed and circumstances under which this is happening endangers the possibility of establishing a historical record. We should know, as a society, that the values we wish to uphold are contingent on our knowledge of the history in which they are rooted. Patrimony is the embodiment of that history. I am concerned that we might be condemning ourselves to blindness by depriving ourselves of the knowledge contained in these works. There is urgency in documenting what is still standing. There is much to be learned from these gems of architecture and the communities that live in them.

It is not simply because we want a better archive that we need this knowledge: as we seek to adapt our cities to climate change and its consequences, we will need it to inform forward-looking design with humanist values and architectural thinking. Rosenfield had an ambitious view of an architect's unique talent and responsibility that resonates today. With 50% of the world's carbon extracted for construction¹⁶, and the survival of our species itself

in question, architects have again a key role to play in proposing alternatives to the status quo and the current demolish/rebuild model. A nexus between conservation, environmental responsibility and forward-looking design is quickly emerging that will eventually enter the equations of decision-makers and stimulate architects everywhere, as exemplified by the initiative launched in the United Kingdom by the "Architects Declare" group¹⁷ that proposes among other pledges to seek to "upgrade existing buildings for extended use as a carbon efficient alternative to demolition".

Considering the challenges to our democracies and to our environment, we can only hope for a more enlightened approach to our built environment. Rosenfield's hospitals give us a map to trace our steps back to a viable future.

Notes

- 1 Isadore Rosenfield, "The Fruit of Research", *Modern Hospital*, March 1937, Vol. 48, 58-64.
- 2 In part with the support of the Clarence Stein Institute at Cornell University and the Architectural League of New York.
- 3 A new facility was built on Rykers Island.
- 4 Isadore Rosenfield, "The Fruit of Research", *Modern Hospital*, Vol. 48, March 1937, 62-63.
- 5 Works Progress Administration, a New Deal administration that put Americans to work on public infrastructure as of 1935. A number of artists decorated public buildings under this program.
- 6 Jane Jacobs, "Rosenfield and his Hospitals", *Architectural Forum*, September 1952, 128.
- 7 Isadore Rosenfield, "Brief Statement of Professional Record", *AIA file*, 6 October 1952.
- 8 Isadore Rosenfield, *Hospital Architecture and Beyond*, New York, Van Nostrand Reinhold, 1969.
- 9 Isadore Rosenfield, op.cit.
- 10 Isadore Rosenfield, op.cit., 5.
- 11 Isadore Rosenfield, op.cit., 15.
- 12 Ubiquitous now, this type of door allows for the simultaneous passage of a gurney and a person, thus preventing collisions.
- 13 Jane Jacobs, op.cit.
- 14 Jane Jacobs, op.cit.
- 15 New York City Housing Authority, the New York State entity that provides public housing in New York City. It is facing a \$32B deficit in the next five years.
- 16 Alan Organski, *our carbon problem*, decarbonizeddesign.com.
- 17 UK Architects Declare Climate and Biodiversity Emergency, 875 signatories at the time of writing, www.architectsdeclare.com.

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Charles Giraudet

(France, 1960). *Architecte DPLG (Diplôme par le gouvernement)*. Photographer. Since 2013 documenting the hospitals of Isadore Rosenfield in New York. His work has been shown at the Architectural League of New York, Cornell AAP (College of Architecture, Art and Planning, Cornell University), *The New York Times* among others. www.charlesgiraudet.com.



Paul Nelson, France-usa, Memorial Hospital in Saint-Lô, Normandy, France, 1948-1965, "*Clausstra*" façade detail. © Photographed by Donato Severo.

Architecture at the service of care: France-USA Memorial Hospital of Saint-Lô

BY DONATO SEVERO

The France-USA Memorial Hospital in Saint-Lô, Normandy (1948-1965), is known as one of the most relevant French Reconstruction projects. It is the first important work crafted by the French-American architect, Paul Nelson (1895-1979). His humanist approach inspired a series of unprecedented, meaningful and technical architectural innovations. The organization of the new hospital, based on functionality and modernity; polychromic and artistic inclusion; extended high-quality work, notably the "*claustra*" *façade*; ovoid surgical rooms and technical equipment are testimonies to the major quality and innovation pursued in the Memorial Hospital project. Paul Nelson's work brings into focus the rich and comprehensive relationship between architecture, arts and care.

One third of all Americans is ill-fed, ill-clothed, ill-housed and receives insufficient medical care.¹

Connections between architecture, arts and healthcare deeply marked the 20th century, one of tragedy and destruction without equal due to two World Wars. The richness and fruitfulness of these ethical, scientific and cultural connections between architecture and healthcare defined the century. To this day, health remains a political priority in Europe, as well as in the United States and around the world, and one of the most debated and most controversial issues in our society.

Our health reflects our surroundings, our habitat.

How to assure satisfactory quality of life for our future generations that is truly respectful of human health and environment whilst offering access to housing?

How to build a balance between humans, their habitat and its surrounding wildlife?

What health and environmental factors established and/or influenced our contemporary condition? How can architecture and arts contribute to our health?

Those reflections call for a renewal of project methodology, towards a new understanding of "healthcare" and a new balance between material and immaterial, functional value and architecture significance.

The connection between architecture and health affects the clinical sphere and hospitals, but also other facilities in the realm of public spaces. This sector of intervention is increasingly developing in our society. Evolution and obsolescence of architectural solutions, technical aspects and devices in the healthcare field are moving fast. Historical knowledge allows us to reflect on key features, consistencies and fractures as well as failures in this sector whose central problem is extremely sensitive and complex: Mankind's health.

The France-USA Memorial Hospital in Saint Lô (Saint Lô Hospital), Normandy – and Paul Nelson's work (1948-1965) – bring the relationship between architecture, arts and care into focus.

A historical analysis of this architectural object renders the essence of its double nature: testimony of the past and active protagonist of the present.

A Reconstruction masterpiece

The Saint-Lô Hospital is known as one of the most relevant French Reconstruction projects. Belatedly classified as a *Monument Historique*,² the construction was envisioned as a combination of structure, shape and function. The project of this hospital is based on human needs, with a constant concern for rationality as well as economical construction and exploitation.

The Saint-Lô Hospital is the first important work crafted by the French-American architect, Paul Nelson,³ in cooperation with Roger Gilbert, Marcel Mersier (1910-1974) and Charles Sébillote. Nelson's great desire was to assure the utmost well-being of those admitted to the health center. His humanist approach inspired a series of unprecedented, meaningful and technical architectural innovations. The organization of the new hospital, based on functionality and modernity; polychromic and artistic inclusion; extended high-quality work, notably the "*claustra*" *façade*; ovoid surgical rooms and technical equipment are testimonies of the major quality and innovation pursued in this project.

Two aspects of the 20th century

The Saint-Lô Hospital exemplifies two distinct and convergent narratives with its innovative and meaningful work.

The first is one of modern hospital architecture, as a main public health facility, focused on physical and psychological comfort for the patients as well as for the hospital staff,

prevention, space organization and technical hospital facilities. The second one articulates modern space, art integration and construction innovation, inspired by both Parisian artistic and architectural avant-garde and American culture.

Those two 20th century narratives reveal themselves in Nelson's tireless research work and his methodical genius that profoundly and irrevocably marked the history of reconstruction architecture. Nelson started the Saint-Lô Hospital project at 53 years old, in 1948.

During the 1930s, he conducted numerous studies and research, particularly in the hospital field.⁴ After WWII, Nelson enjoyed tremendous prestige: "Modern architecture prestige, as an intellectual property, combines itself with the more traditional artistic prestige of an architectural formation completed in Paris, and both are fueled by studies linked with the work of the Lille hospital complex."⁵ Nelson gained this recognition because of his dual commitment in 1940-1944 to culture and science as a counsel of the American Federal Administration, and political involvement as leader in the France for ever Movement, a national organization close to the France *Combattante* Movement. In America, Nelson dedicated his work to hospital studies, housing, urbanism and other, more detailed issues as the therapeutic effects of colors and standardization. In the aftermath of the WWII, his experimental work in 1940-1944 made him the most qualified to upgrade French architects' knowledge of American construction technics.⁶

After Nelson's death, Anatole Kopp (1915-1990) wrote an essential article⁷ which clearly revealed Nelson's work themes: social concerns, intransigent values, logic and rationality in the method, all of which contributed to bring architecture out of Beaux-Arts pseudo-artistic subjectivism. Nelson built only a few projects, but his work, with its rational methods and capacity to dialog with other disciplines and other sources of knowledge, was the start of a true revolution which gave 20th century architecture its cultural value.

The Saint-Lô Hospital is the result of Nelson's architectural studies in the 1930s and his further research on the "control of the form" in the 1940s. Nelson puts human needs at the center of: "the whole man, gut, sex, head, dreams included";⁸ he was also a utopian who causes us to reflect on the notions of well-being, colors therapeutic effects, the role of the health center in our society and its future, the "useless space", the "art to move from one volume to another, one form to another",⁹ and the concept of flexible envelopment.

The French-American architect knew how to bring life to a space. Nelson articulated: "...an architecture that frees the individual of the empiric sensation that life is imposed, by offering alternatives and allowing flexibility to his constructions, and to his future transformations; an architecture that stimulates human sensibility by using contrast in its volumes and forms."¹⁰ He later added: "And I think that is the foundation of all art: the art of living in the sense of enjoying, perceiving differences and appreciating those differences."¹¹ In creating the Saint-Lô Hospital, Nelson established several innovations, now considered as significant technical and

architectural fixtures. The surgical ovoid rooms, the lighting and the "*claustra*" façade are perfect examples. Those innovations are subject to an architectural, construction and technical detailed analysis, supported by archives, documents and other research materials.

Analytic approach and form control

Nelson conceived a building not only as a system of basic objects grouped together but more as a system of functions: programing, distribution, circulation, thermal, acoustical, structural (supported or supporting), and flexibility. Nelson's innovation touches on the general conception of the modern hospital, synthesized in the concept of *hôpital pour la vie* [hospital for life] – a hospital intended equally for the sick and the healthy. It also influenced the improvement and creation of several architectural, technical and functional facilities.

This kind of typology is the result of shaping, of using functionalism and plastic construction work in the modern space. Nelson used Modernism as a renewal and a call to reason. He never, however, overlooked esthetic and spatial structure.

Nelson described the hospital – using a tree as an analogy: the trunk represents vertical circulation; branches are the various floors; roots, the ground floor and basements. The construction plan is made so different medical services form a whole. The upstairs care services where patients are hospitalized are linked to the diagnostic and treatment services (radiology, laboratory, pharmacy, etc.). The radiology center, where social and preventive medicine consultants are located, is directly connected to the medical services.

The "*claustra*" façade

The South façade measures 107 meters in length, 32 meters in height and is composed of 6,180 "*claustra*" panels. In order to better benefit sunshine and daylight, the rooms' south wall is entirely made of glass panels – composed by 60 x 60 centimeter elements – allowing the patient to be in permanent connection with the outdoors. The idea of psychological conditioning is applied to the construction. The patient, even lying down, can enjoy the calm and relaxing landscape, as a distraction from suffering. The patient benefited from the light's bright ambience. The metallic grid dimensions avoided any aggressive external intrusion that may ruin intimacy or sense of security.

The "*claustra*" façade system allowed unrestricted ways to establish natural lighting.

As Nelson explained:

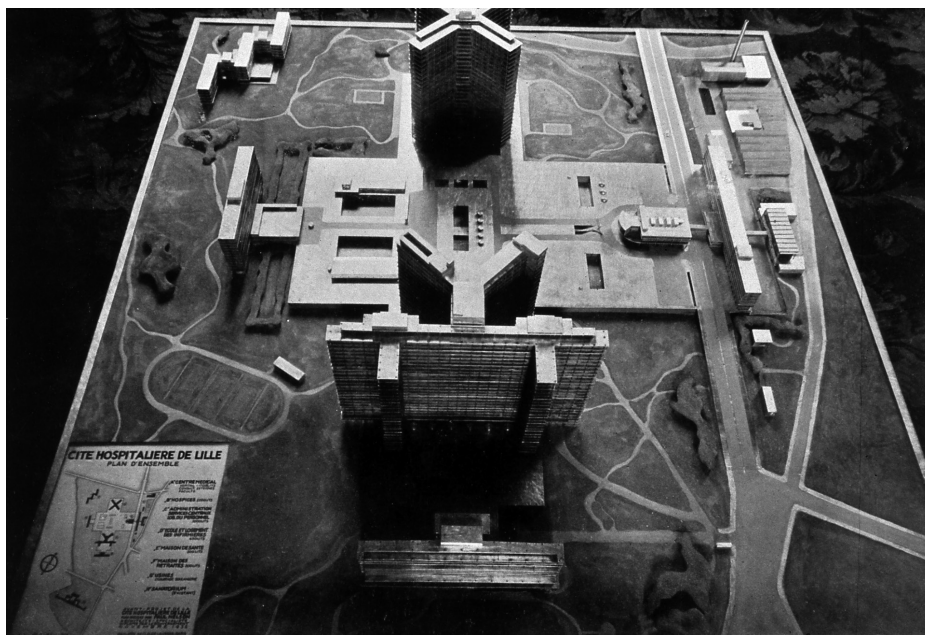
...to have everything open or everything closed, to adopt any solution, to fill those squares with transparent, translucent or opaque materials that is to find the unique mosaic corresponding to the lighting needs or corresponding to the residents liking.¹²

The colors of the metallic grid were chosen by Fernand Léger (1881-1955): the west side, close to the nurses' quarters, is blue; the remote east block is red; the ground floor, a continuous element with a different function than the hospital buildings, lemon yellow. The fixed or push-out

01 Paul Nelson, France-USA, Memorial Hospital in Saint-Lô, Normandy, France, 1948-1965, south *façade*. © Photographed by Donato Severo.



02 The site of the Memorial Hospital, in May 1951. © Saint-Lô Hospital archives.



03 Lille Hospital complex, model. © Photographed by Man Ray.

“*claustras*” are made with molded aluminum and retainers to maintain them open, half-open or closed. The “*claustra*” chassis are nested in one another around a U-shaped iron framework. This creates a streamlined form on the outside face. Its projection creates different perceptions and a different scenery depending on the viewpoint. At the foot of the *façade*, a walk in the park offers kinetic sequences, like the dimension Nelson discusses in the commentary on Pierre Chareau’s (1883–1950) Dr. Dalsace House. In 1933,¹³ Nelson wrote a published article wherein he mentioned: “Today’s man knows about space and moreover, about moving in the space. Simple plans and sections won’t satisfy architectural expectations but the fourth dimension, where time intervenes, can. It is necessary to create spaces crossable in a relative timeframe. We need to feel the fourth dimension.”¹⁴ For Nelson, the fourth dimension is the contrast between *dynamism* and *stasis*: “In architecture, the framework is static and carries what is or what should be eternal, immobile. Dynamism is completely independent from it, and is expressed by vertical and horizontal distribution, by thin and mobile partitions walls...”¹⁵ Later, Nelson stated about the Saint-Lô Hospital *façade*: “These outside columns are great modulation, music’s great *tempo*, and behind it, we find flute and violin playing, free forms, that is.”¹⁶

The “*claustra*” *façade* is a great example of synergetic redistribution of functions: the envelope is in synergy with the carrier and other sub-systems of lighting, isolation, ventilation etc. It is not basic functionalism where the object is specialized only “function by function”.

Modern polychrome

One of the most remarkable features of the Saint-Lô Hospital is undoubtedly the use of polychrome. Saint-Lô Hospital breaks away from traditionally flat and morose health center colors. Each building is distinguishable by its color, its volume and all are combined in an artistic whole.

The use of colors as a therapeutic tool originates from ancient Egypt and Greece and is deeply rooted in Chinese and Indian medicine. It is also a core part of ayurvedic medicine. In Europe and in the United-States, the interest around a therapeutic use of colors developed during the second half of 19th century.

In 1878, Dr. Edwin Babbitt (1828–1905) published *Light and color principle*, a writing wherein he advised of different ways to use colors in healing. In 1933, *The Spectro Chrometry Encyclopaedia* by Dinshah Ghadiali (1873–1966), an Indian scientist, is the foundation of most of modern research. Around the same time, a form of color therapy, known as “Syntonics”, was developed in the United-States, by Dr. Harry Riley Spitler (1889–1961) who discovered the possibility of creating deep psychologic and physiognomic changes by modifying the light’s color. Since then, the interest in color therapy has gradually grown. In the Modern Movement, its use was continuously debated between those who preferred a “pure, white” architecture, purists, and those who claimed the use of polychrome as an essential modern aspect.¹⁷ On this matter, Barbara Klinkhammer criticized the superficial historiographic approach:

Henri-Russell Hitchcock has identified three distinct uses of color, since the beginning of the Modern Movement: white omnipresence at first; then an increased interest in colors onto architectural buildings; finally, in 1930, the restricted use of raw materials colors only. This vision is too simplistic. The use of color has in reality known two different schools of thoughts: it is true that purist proponents were dominant. Yet, architects coming from the art world quickly adopted a polychrome modernity, where color supported artistic expression, actually anti-decorative, and was the tool of spatial expression and three-dimensional purism.¹⁸

It was also the case of Nelson who, like Van Doesburg (1883–1931), Taut (1880–1938), Le Corbusier (1887–1965) etc., was

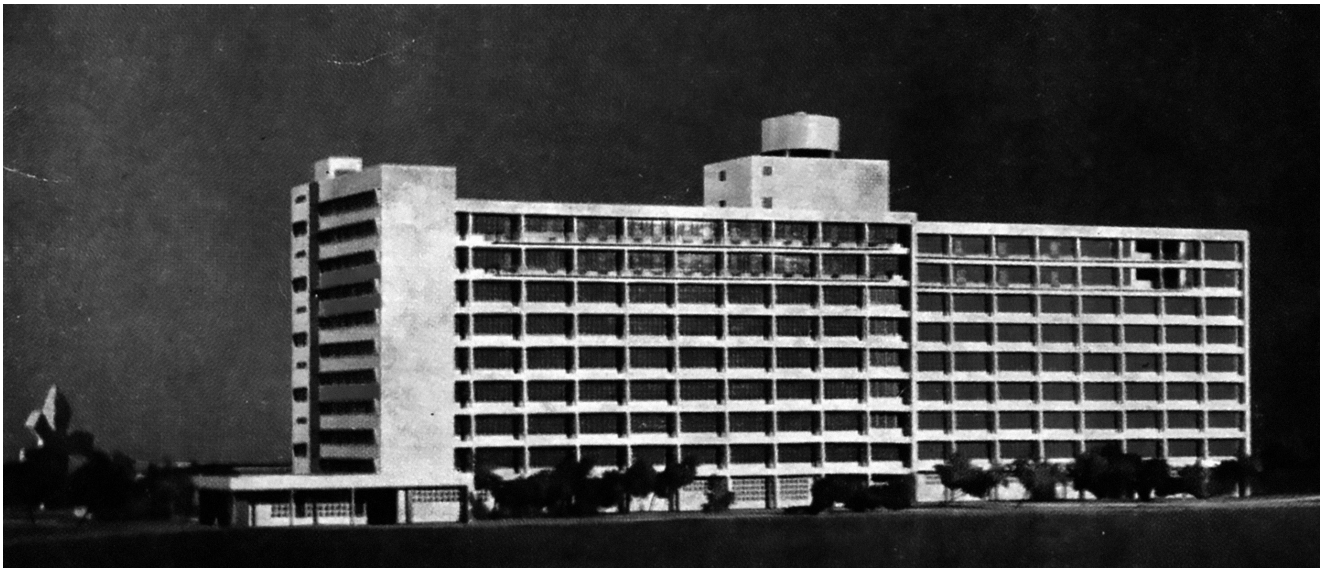


04 Paul Nelson, *le jour de l'inauguration*. © Saint-Lô Hospital archives.



05 Bedroom with a bright red wall. © Photographed by Etienne Weill. Published in *Cabiers du Centre Scientifique et Technique du Bâtiment*.

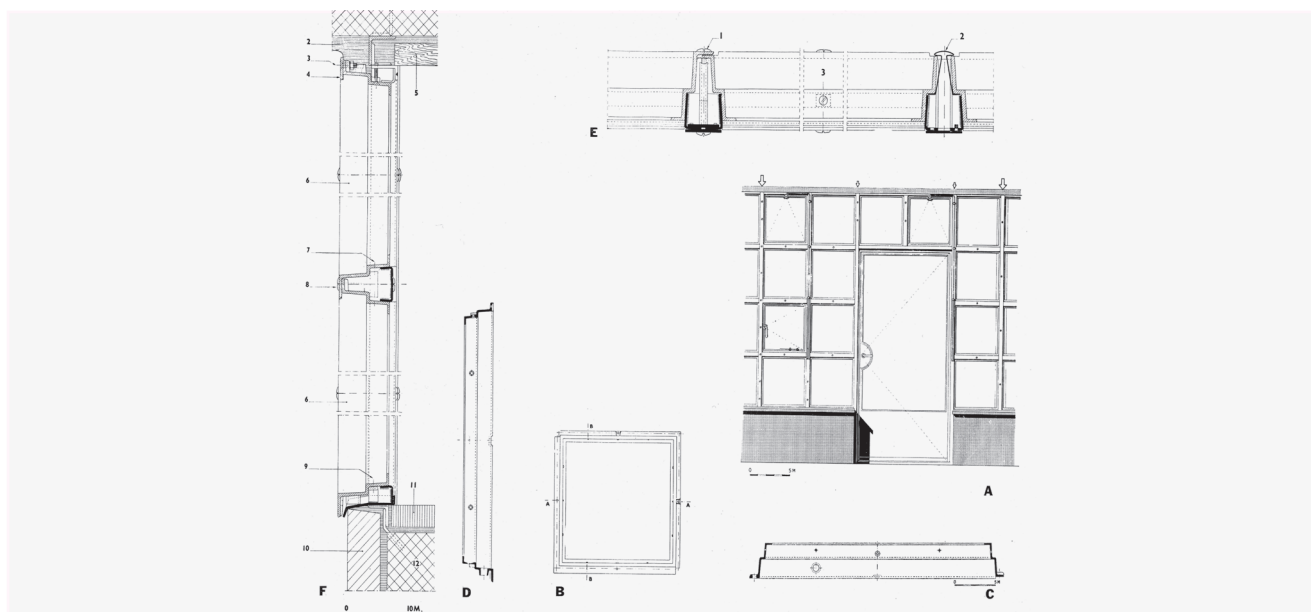
06 South *façade* polychrome project by Fernand Léger. © Postal card, private collection.



07 Paul Nelson, France-USA, Memorial Hospital in Saint-Lô, Normandy, France, 1948-1965, *la salle ovoïde*. © Photographed by Etienne Weill, Saint-Lô Hospital archives.



08 Paul Nelson, France-USA, Memorial Hospital in Saint-Lô, Normandy, France, 1948-1965, gate of Saint-Lô hospital, mosaic by Fernand Léger, detail. © Photographed by Donato Severo.



09 Paul Nelson, France-USA, Memorial Hospital in Saint-Lô, Normandy, France, 1948-1965, "Claustra" façade construction details. © Published in *L'Architecture d'aujourd'hui*, No. 70.

looking to connect artistic avant-garde research, particularly Cubism, and architecture.

Saint-Lô Hospital is not a simple transition from paint to architecture, under the influence of Cubism. The polychrome project of Saint-Lô is defined by three major characteristics.

Firstly, the application of polychrome is systematic onto large scale buildings. Secondly, the color is part of, and at the service of, the treatment. The therapeutic use of color, the "built-in color therapy", is – for Nelson – an integral element in the modern hospital conceptualization. The Saint-Lô Hospital is the first hospital in Europe that welcomed polychromy. Lastly, the polychrome is a kind of synthesis between Fernand Léger's (1881-1955) spatialization approach and Nelson's search for *an architecture that touches human's sensitivity*. The collaboration between the artist and the architect produced a continuity of research and joint projects that are the direct expression of an art synthesis.

The polychrome interior

To realize the polychromic composition of the Saint-Lô Hospital, Nelson relied on the enthusiastic collaboration of his close friend, Léger. From this resulted an enjoyable and joyful polychromy. The polychrome project of Léger, who worked on the Saint-Lô project from 1953 to 1955, right before his death, was applied to communal spaces, care services, several bedroom or corridors walls, depending on the space's function.

The color tones are warm and cheerful – lemon yellow, bright red, *veronese* green, *charron* blue – creating an exceptional atmosphere of life inside the health center.

The wall behind the headboard in the patients' rooms is bright red, while other walls are often in a lighter color. The rooms' floors are painted in vibrant colors. We can find colors on doors, hallway walls, on the aluminum framework

of the south façade's immense canopies. To further enrich this joyful polychromy, Léger created, at the hospital gate, under a peristyle, a 40 meters square mosaic. The pattern evoked the years 1939 to 1945, crucial in regards to France and the United-States' history. Bridgman (1865-1943) wrote about it:

This piece is the only work of decoration in the hospital. We could search hours for a superficial detail, a decorative appliqué, a molding or a useless plinth, in vain. This hospital would be the most austere health center if its sizing and its colors didn't make it a "euphoria-inducing" space. This characteristic is to the architect's merit, who took risks.¹⁹

The polychromy, as defined by Nelson, is an element that is fully part of the therapy: its purpose is not to decorate but to create a relaxing atmosphere, full of hope, that the patient can instinctively feel without having to analyze it or forcefully adapt to it.

Transient and authentic

The Hospital by its very nature is subject to continuous transformations: equipment miniaturization, profitability, acceleration of procedures and treatments, future discoveries, all of which can complicate the building's conservation.

The Saint-Lô Hospital has two main qualities: it is, simultaneously, one of the most significant modern works of 20th century architecture and also one of today's high-performing medical structures. This double purpose creates complex situations, concerning the site's heritage over time, and the implications for modifying, restoring, and keeping the building's authenticity. Modifications, alterations, metamorphoses endured by a large number of 20th century edifices attest to the vulnerability of those works.

This observation is directly linked to the evolution of our conception of durability, now different from when those earlier 20th century constructions were made.

The idea of a “transient, fugitive and contingent” [Baudelaire (1821-1867)] modernity and the short timeframe conception have impregnated architectural creation since the end of the 20th century. 20th century architecture, via continuous experiments of new construction technics and new materials, favored technical innovation more than durability and resistance to the test of time. Hence, to assure the sustainability of the perishable is the paradox of modern construction conservation. The conservation issue is directly linked to the edifice’s sustainability. To consider buildings as consumption goods to use and to throw away and to replace with new, more advanced versions, is understanding life as a short cycle. On the contrary, conceptualizing the building as an extension of the site, part of the geographic context, takes into consideration a longer life cycle. The Saint-Lô Hospital protective measures offer a new perspective, allowing for consideration of and planning for the conservation and restoration of some of the meaningful elements Nelson’s masterpiece.

Humanism

Architecture historiography has allowed a better understanding Nelson’s personality and architecture. The architect’s work is increasingly recognized as one of the most sophisticated modern results of research and as a major contribution to care and well-being in architecture. Of course, different issues remain to be addressed. If effectiveness and hygiene are two main objectives in modern health, the search for humanism in architecture is the main aim of the Saint-Lô Hospital project.

Humanization is, perhaps, Paul Nelson’s most significant theoretical and practical addition to 20th century history; a century of conflicts and unprecedented violence. Amidst these tragic stories, the Saint-Lô Hospital is a beacon of light, rationality, and generosity and the representation of humanism of 20th century architecture.

Notes

- 1 Franklin D. Roosevelt, 1937. Citation from Paul Nelson, “La transformation de l’architecture aux Etats-Unis”, in *Arts de France*, No. 5, 1946, 36.
- 2 The 24th September 2008, after a lengthy procedure, the Minister of Culture and Communication signed the decree No. 32, classifying the France-USA Memorial Hospital of Saint-Lô as a historical monument.
- 3 Chicago 1895 – Marseille 1979.
- 4 In 1948, Nelson, Beaux-Arts 1927 graduate, only built the Parisian Maison Brooks (1928), and the film set of “What a widow!” (1929). Between 1930 and 1938, he studied eight different projects, unrealised: Audio-visual Room in 1930, in Bronxville; Maison de Santé – Type minimum pour climat tempéré, 1930-1932; Cité hospitalière 1932-1933, in Lille; Pavillon chirurgical, 1934, Ismailia; National centre CBS in 1936, in New York; Suspended House in 1936-1938; Palais de la Découverte, 1938, in Paris, with Oscar Nitzschke and Frantz Jourdain; Theatre W.G.N., 1937-1938, in Chicago, with Fernand Léger. After 1948, fourteen other projects and major creations followed.
- 5 Gérard Monnier, *L’architecture en France, une histoire critique*, 1918-1950, op.cit., 334.
- 6 Ibidem.
- 7 Anatole Kopp, “About Paul Nelson”, in *L’Architecture aujourd’hui*, No. 205, Octobre 1979, 9.

- 8 Jean Hélion, “Terme de vie, terme d’espace”, in *Cabiers d’Arts*, Paris, Decembre 1935, 269.
- 9 Paul Nelson, “Un américain à Paris, interview de Paul Nelson” gathered by Charles Galpérine, in *Nôtre République*, 3rd February 1967.
- 10 “La Maison suspendue, Recherche de Paul Nelson” published by *L’Architecture vivante*, Paris, Editions Morancé, 1937, n.p.
- 11 Paul Nelson, “Un américain à Paris, interview de Paul Nelson”, op.cit.
- 12 Paul Nelson, “Un américain à Paris, interview de Paul Nelson” gathered by Charles Galpérine, in *Nôtre République*, 3rd February 1967, No. 250, 5.
- 13 Paul Nelson, “La maison de la rue Saint-Guillaume”, in *L’Architecture d’aujourd’hui*, Paris 1933, No. 3-4, 36.
- 14 Ibidem.
- 15 Ibidem.
- 16 “Un américain à Paris, interview de Paul Nelson”, op.cit., 5.
- 17 Furthermore, in 1925, Fernand Léger to Le Corbusier argued against generalised architectural purism: “(...) by imposing art purism on workers, we destroy fantasy, life’s charm: to do them good, we make them unhappy; this doesn’t make sense.” F. Léger, “L’esthétique de la machine”, in *Fonctions de la peinture*, Paris Gonthier, 1965.
- 18 Barbara Klinkhammer (Associate professor, University of Tennessee, Knoxville, USA, “White Modernism? One of the major misunderstandings in the reception of the Modern Movement”, in *The Reception of Architecture of the Modern Movement: Image, Usage, Heritage*, Jean-Yves Andrieux and Fabienne Chevalier, University of Saint Etienne, 2005, 245.
- 19 R. F. Bridgman, “Description de l’Hôpital Mémorial”, in *Techniques Hospitalières*, No. 131 and 132, August-September 1956, 75.

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Donato Severo

Architect and historian, Doctor in History of architecture - University of Paris I Panthéon-Sorbonne. He is an HDR (research supervising) professor, at the *École Nationale Supérieure d’Architecture Paris Val de Seine*. He is member of the EVCAU Laboratory and ICT – Université de Paris Research Laboratory.



Miguel Nogueira and Renato Pinto, Landscape context of Hospital dos Covões. Hospital Rehabilitation Design Studio, Department of Architecture, University of Coimbra, 2018-2019.

Seven notes on the program and design of healthcare buildings' rehabilitation

BY PAULO PROVIDÊNCIA

One of the characteristics of the 20th century heritage hospital is the permanent remodeling of its spaces, a sign of the frequent changes in clinical practices which, in turn, bring about functional, construction and spatial changes. This characteristic, due to the functional prevalence of health facilities, generates forms of environmental and territorial consumerism.

Contrary to any conservation or crystallizing idea of the heritage hospital, this present reflection seeks to find the aspects of this heritage that may be preserved in the remodeling processes, informed by the recent trends in the design of healthcare facilities, which ultimately constitute opportunities for their rehabilitation, reuse or restoration.

Considerations for remodeling: medical, scientific and social values versus architectural, landscape and urban values of hospitals¹

Climate change, environmental sustainability, and spatial depredation are themes that compel us to rethink the relationship between societies and buildings, as an activity that consumes large amounts of energy, environmental and territorial resources. Among the various building activities, health installations with their demanding renovation may generate the greatest spatial depredation. However, when thinking about the rehabilitation of this heritage, contrary to the negative aspects mentioned, one must consider the reluctance towards the rehabilitation of the facility.

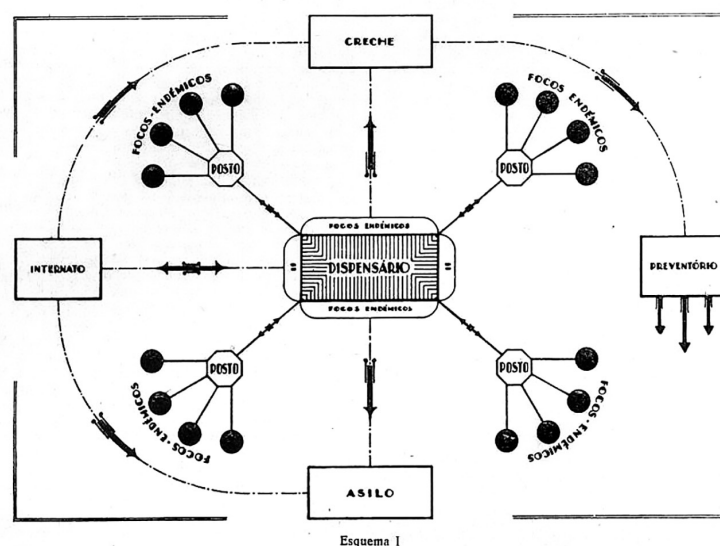
Several factors seem to contribute to an unequal assessment between a social appreciation for historic buildings, and the reluctance inherent in their appropriation for health. First, there is the association between the novelty of the installation and updated scientific and clinical knowledge and practice, in view of the steady progress that Medicine has made since the beginning of the 20th century. This constant progress also translates into continuously new spatial and programmatic requirements which, in turn, generate an almost instantaneous obsolescence of facilities. Other factors could be the degradation of facilities due to lack of maintenance, the change in clinical and building paradigms, the additions or extensions caused by new facilities, distorting the initial design.

Therefore, the question arises as to how to proceed to design new vocations for old facilities, considering them as part of new strategies for social, economic, environmental sustainability in a building dedicated to healthcare. Not forgetting the opportunity that the profound changes in the role of hospital facilities,² and, in particular, the importance

of functional programs in the context of these changes,³ we propose a brief reflection on the potential that the programs may have in the rehabilitation of heritage hospitals, looking for an answer for their future. There is, however, no answer without an in-depth knowledge of these installations, their particularities and vicissitudes, their purposes and ambitions, their scientific and clinical value. Only this knowledge will allow a correct interpretation of the facilities, the attribution of patrimonial value, and through it, a definition of the possibilities, opportunities and strategies of reuse of the facilities.⁴ It is, therefore, urgent to interpret the architectural heritage of health in order to repurpose it.

A primary characteristic of health facilities in the 20th century is precisely their insertion into a system, their belonging to an extended system that includes other elements and other facilities, configuring a network.⁵ The facility is an instance of a given health system, be it the corporate health system in which the State has only an articulating role for the good will of corporations or civil charity, be it a health system that considers family health as the basis of a national healthcare system, or part of a Welfare State.⁶ But even in the first case, in force in Portugal until the 1974 Revolution, the health facilities were conceived as belonging to an extended system that implied other facilities upstream or downstream as it were.

A health system composed of dispensaries dedicated to prophylaxis and inserted in an urban environment (Lisbon, Coimbra, Porto), clinical treatment spaces associated with School Clinics of Medical Schools and dedicated to “curable” cases, with spaces for the concentration of “incurable patients” (Hospital-asylum-colony) located outside urban areas, “in the middle of large areas where the three sections can be installed,” occurs in the first half of the



01 Uriel Salvador, *Elementos e sugestões para a organização do combate à Lepra em Portugal* [Elements and suggestions for fighting the Leper in Portugal], published in *Leprosaria Nacional*, Porto, Dafne Editores.

20th century for tuberculosis and Hansen’s disease, but also for mental illnesses, extending the scope of action beyond contagious diseases.⁷ The current health system, organized into primary health care with the respective Family Health Units, secondary or hospital care, and continuous health care, although with nuances and greater sophistication, is still derived from the rationalities proposed already in the 1930s.

In this regard, the debate on the construction of the National Leprosarium is instructive, described in detail in the chapter *Programs, Typologies, Paradigms* in the book dedicated to it.⁸ In the absence of models for organizing a Hansen’s patient monitoring and treatment service, the debate revolved around two possible solutions to the problem: the adoption of the “fight against tuberculosis” system for the treatment of leprosy, consisting of the creation of a network of disease screening dispensaries,⁹ separation between contagious and non-contagious cases, and sending contagious patients to treatment centers or hospitals; and another that considered the census of patients and their subsequent concentration in a hospital organized between clean and dirty spaces, between preventive and personal areas, and the so-called dirty areas, with the hospital as a reception and investigation unit, inpatient wards for functionally active patients, rooms for patients’ families and asylum wards for incurable or advanced patients.¹⁰ The adoption of the second model at the Hospital-Colony Rovisco Pais, was built and based on a program defined by the General Director of Health José Alberto Faria (1888-1958) and developed by the Surgeon Bissaya Barreto (1886-1974) and the Architect Carlos Ramos (1897-1969). It led to a building organized into autonomous pavilions, some with logistical functions (such as kitchen and laundry), others with inpatient functions (workers’ houses, asylum, family homes), others with reception, quarantine, observation, diagnosis and investigation functions, the hospital. The spatial structure of organization of the set, although less clear than in the Previous Study version, maintained a spatial identity.¹¹

A second characteristic refers to the landscape values in the conception and design of health facilities, including the urban landscapes in which they operate. If, in the first half of the 20th century, sanatorium construction favored specific landscapes for specific curative effects, such as the coastal sanitariums dedicated to the cure of bone tuberculosis, or the high mountain sanitariums for pulmonary tuberculosis, in the second half of the century, due to the implementation of a network of regional hospitals in the district headquarters, the hospitals sought locations in an urban environment but with certain orientation characteristics – usually with the main internment body facing south –, clear views, and elevation in relation to the surrounding urban environment. The association between an orientation towards the south for the inpatient wards or the view of beautiful landscapes for hospital cure, stems from the ideal of “nature cure” that runs throughout the 19th century.¹² More recent studies of “evidence based design”¹³ have reached the same conclusion, that healing is facilitated (faster) in a ward with openings to a natural outdoor space, or that a waiting area in proximity to gardens predisposes patients to healing. Thus, natural light, visual relationships to gardens and landscapes, both in nursing and waiting spaces, induce predispositions that facilitate healing; this is now “scientific evidence”, that is to say, what was inducted has now been demonstrated.

One of the best examples of this would be the magnificent Regional Hospital of Viana do Castelo (1970-1984), designed by Raúl Chorão Ramalho (1914-2002), whose location on the slope of the Santa Luzia hill, slightly elevates it in relation to the urban center, with the wards opening to the south allowing magnificent views over Viana, the mouth of the Lima and Douro Rivers. Advantage of the surroundings was taken by its internal organization and further accentuated by the horizontality of the building’s precast concrete elements; landscape sensitivity that translates into a real qualification of the installation and its use. Another example, although in a more complex context, is the Regional Hospital of Guimarães Senhora da Oliveira

(1975-1991), a project by Celestino de Castro (1920-2007), located on a small elevation of undulating terrain at the entrance to the city. Vertical building and wards oriented toward the south, characterize the ground level floor as a space for receiving and distributing urgent and diagnostic programs. In this case too, one can affirm a conviction of the importance of landscape for the hospital, in dialog with a careful implementation.

A third characteristic arises from the type of facility. The repetition of a model of spatial organization over a period of time, one or two decades allows the determination of necessities, norms and design, leading to the integration of functional experiences and their optimization, thus for finding the right materialities for the elements that constitute it. Take, for example, the construction of sanatoriums throughout the 1920s, 1930s and 1940s.¹⁴ After the initial versions of construction in stone masonry, in reinforced concrete, or mixed construction, which would translate into a successively refined expression of the convalescent gallery, between slender pillars and reinforced concrete slabs. The construction of the San Maria Sanatorium in the Senatorial resort of Caramulo,¹⁵ opened in 1926, is perhaps a paradigmatic example of this organization. The openings of the infirmary walls in stone masonry do not align with the rhythm of the reinforced concrete porticoed structures of the galleries, and, unlike the galleries of the Sanatorium of Guarda,¹⁶ there is no continuity solution between wards and the convalescent gallery. Access to the gallery was made in a disciplined way, through a closed mediation space, in iron and glass, coinciding with the entrance to the sanatorium on the ground level floor, allowing total medical control for accessing the galleries, that is, the control of “exposure to air” for the patients. This access control system would be repeated in the Surgical Pavilion of the same resort, a building with a sophisticated design carried out at the height of Caramulo’s curative activity, coinciding with the start of activity by the Spanish fisiologist Manuel Tapia (1895-1971)¹⁷ as medical director of the resort, in 1937.¹⁸ A solution for a connection between the infirmary and convalescent gallery was fully studied by André Tavares (1976-), through the Heliântia clinic.¹⁹ A very different solution appears at the Sanatorium of Ferroviário or Penhas da Saúde (1927-1936), in Covilhã, a project by Cottinelli Telmo (1897-1948) restored by Eduardo Souto de Moura (1952-) in 2014, then converted into the Pousada [inn] of Serra da Estrela. The convalescent galleries are a strong element in the composition of the rising elevation and appear alternating with the batteries of rooms, allowing them to receive direct sunlight. The repurposing project maintains the original character of the convalescent galleries, proposing a possible contemporary use, as available space in association with the blocks of rooms.²⁰

The functional specialization of health installations during the 20th century has often led to an approach to new problems, requiring research for new technical solutions. This fourth characteristic of healthcare facilities is sometimes revealed in construction techniques and materials, or in detailed functional organizations, or in the

incorporation of air conditioning and ventilation mechanisms and systems. On the one hand, comfort in hospitalization, avoiding direct sunlight while still valuing natural lighting, or allowing for cross ventilation of spaces; on the other hand, new means of diagnosis, such as X-rays, or more recently, computed axial tomography, require construction elements to protect patients from the radiation emitted by the devices. Only detailed knowledge of the requirements and programs on which the architectural projects were based makes it possible to understand the design and design options present. In this type of installation, the architectural heritage is not separate from the technological affirmation of the building, which is sometimes placed above the values of design and composition. On the other hand, these technical specifications and materials, in cases where they still remain, raise great difficulties in the restoration processes, where production needs to be resumed for out of stock products which may have been suspended or forgotten for several years.²¹ The Radio Pavilion of the Portuguese Institute of Oncology, a project by Architect Carlos Ramos, is perhaps one of the architectural works that most strongly marks a rational conception of a health facility as an element of programmatic and technological research; its restoration is imperative. Another example is the Alcoitão Rehabilitation Medicine Center (1956-1966), a pioneering project by Sebastião Formosinho Sanchez (1922-2004).

Program for making the heritage values compatible with the new health facility design requirements

Referring to four points about the heritage value of health facilities to be respected in the restoration, rehabilitation and reuse processes, the question arises concerning its ongoing maintenance through changes in the program and paradigms in health facilities. These changes consider the appearance of a vast set of Family Health Units, whose programs have been the object of review and deeper study, making further developments likely. The autonomy of specialty consultation services, creating outpatient consultations, both in school hospitals and in district hospitals, requires rethinking not only the hospital’s accessibility and urban presence, but also the internal structuring of services, abandoning the spatial organization model based on Humboltian organizational teaching. Similarly, in this sense, the progressive importance of outpatient services, of which surgery is an exponent, reinforces the importance of the hospital’s urban presence and access. On the other hand, the relative autonomy of hospitalizations as well as the means of diagnosis, where users can be served from other areas, reinforce an understanding of quite different hospital facilities which, until recently, predominated. Finally, a strong trend towards dimensioning that does not exceed 500 beds, imposes a certain scale and dimensional limit, which has implications for their design and presence. These changes in the programming of hospital facilities allow another appreciation of heritage hospitals, allowing for a rehabilitation that values them and can be synthesized in three programmatic



Pavilhão Cirúrgico do Caramulo. Conservar A Memória: Restaurar o Passado para habilitar um Futuro
XIV. Perfil Transversal Noroeste (7), esc. 1/30. Pormenorização construtiva e material

Universidade de Coimbra, Faculdade de Ciências e Tecnologia, Departamento de Arquitectura. *Dissertação Final de Mestrado em Arquitectura, sob a orientação científica do Professor Doutor Paulo Providência. Por João Pedro Sarzedas Moura, nº 2013153252*

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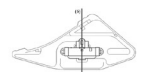
(1) Canaleta de sector rodado, 70mm (2) Mantas geotêxtil (3) Filtro polimérico (4) Tela asfáltica impermeabilizante e barreira anti-vazios, 3mm+2mm (5) Isolamento térmico tipo "ROOFMATE", 60mm (6) Canaleta de drenagem com pendente de 1,5% (7) Perfil metálico de remate e selagem elástica (8) Carpetamento de flandres em chapas de alumínio tipo "HIEINGZINK", com pendente de 2% (9) Revestimento interior em microcimento tipo "SECI", composto por duas camadas de MCO e MCO2, 10x20mm (10) Canaleta de massa leve armada com pendente, 40mm (11) Lapa exterior em betão armado existente, 100mm (12) Caldeira de drenagem exterior, 100mm (13) Componente para maquinaria do elevador (14) Barrete em madeira, 120x120mm (15) Escanção em madeira (16) Perfil de remate em madeira para fixação de lajequinada, 100mm (17) Estale em reboco de argamassa e areia (18) Lintel em betão existente (19) Corrimão em madeira de pinho (20) Elevador de tipo "CORTIS" (recuperado), existente (21) Fictural em madeira polida, amarela pré-fabricado com caldeira com pendente (22) Tapa de burro, 10x200mmx100mm (23) Perfil de remate vertical em madeira para fixação da lajequinada, 100mm (24) Argamassa de enchimento para estuque em areia e cal, 12mm (25) Estuque alagado com pó de cal e gesso, 10mm (26) Rodapé em madeira de pinho, 100mmx20mm (27) Tapa em madeira com entalhe para remate de rodapé e parede de estuque (28) Perfil de aço quadrado pré-fabricado para canal de drenagem exterior (29) Argamassa de reboco leve formulada com cal hidratada natural e integradora de cor (tipo "SECI ELOCOR LIME", 40mm (30) Argamassa de reboco para estabilização e homogeneização de alvenaria antiga à base de cal hidratada (tipo "SECI REABILITA CAL CS", 20mm (31) Junta em argamassa, 10mm (32) Toldo de ferro, 10x200mmx120mm (33) Vapamento da da estera em madeira (34) Carveta em madeira de remate (35) Lata em madeira de pinho (36) Perfil de ferro em "U", 100mmx12mm (37) Apoiamento com ferro em madeira de pinho, 100mm (38) Junta de estalo em argamassa branca suja (39) Laminaria de aluólio portapapeis, 40x100mm (40) Argamassa de enchimento à base de cal e areia, 15mm (41) Argamassa de reboco para estabilização e homogeneização de alvenaria antiga à base de cal hidratada (tipo "SECI REABILITA CAL CS", 25mm (42) Sinal em madeira de pinho (43) Placa em contraplacado marítimo intercalado com membrana elastomérica para ancoramento, reforço e estabilização de walls, 20mm (44) Barrete em madeira, 100x100mm (45) Tela asfáltica (46) Contorno em aço (47) Bateria metal bancada (48) Aro de aço em madeira de pinho (49) Tapa de madeira para fixação dos apoiantes, 40x40mm (50) Lavatório em mármore travertino (51) Perfil metálico de remate da transição material edificação (52) Grupo de fixação metálica para pedra tipo "HALFEN HRC 1" (53) Laje de granito amarelo polido, 60x60x20mm (54) Grupo de fixação mecânica para pedra tipo "HALFEN HRC 1" (55) Estuque, 12mm (56) Argamassa de enchimento à base de cal e areia, 20mm (57) Argamassa de reboco para estabilização e homogeneização de alvenaria antiga à base de cal hidratada (tipo "SECI REABILITA CAL CS", 25mm (58) Canal de água (59) Fundação de betão armado para envolvimento do canal de água (60) Laje de pedra mármore tipo amarelo travertino, 40mm (61) Caixa de areia e de pedras, com inclinação não inferior a 1,5% (62) Tela geotêxtil, 5mm (63) Canaleta de fundação em inox revestido, 12mm (64) Terreno compactado estabilizado (65) Caixa de betão (66) Mantas drenantes (67) Geotêxtil (68) Betão de laje, 200mm (69) Tela asfáltica impermeabilizante, 3mm (70) Guarda-corpo em alumínio, 10x100mm (71) Perfil de remate do pavimento exterior (72) Parede em betão armado (73) Proteções em madeira de carvalho, 20mm (74) Pinhadura (75) Perfil metálico de remate para rodapé invertido (76) Lintel em betão, existente (77) Cancellaria em madeira de carvalho de traço simple (recuperado), existente (78) Sapata existente (79) Cancellaria em alumínio de traço simple (recuperado), existente (80) Viga em betão armado, existente (81) Bancada em mármore travertino, 40mm (82) Barrete em madeira, 100x100mm



Corte
Cotagem
Legenda

Pavilhão Cirúrgico do Caramulo. Conservar A Memória. Restaurar o Passado para habilitar um Futuro
XIII. Perfil Transversal Noroeste (6), esc. 1/50. Fomenorização construtiva e material

Universidade de Coimbra, Faculdade de Ciências e Tecnologia, Departamento de Arquitectura. Dissertação Final de Mestrado em Arquitectura, sob a orientação científica do Professor Doutor Paulo Providência, Por João Pedro Sarzedas Moura, nº 201313351



aspects: their presence and urban articulation, the adaptability of the facilities, and a design that focuses on the user rather than on merely service.

Firstly, in the proximity and urban integration of the facilities and in the new role that outdoor spaces can play, considering the opening of the spatial segregation of health facilities. In fact, and perhaps due to the establishment of a sanitary cordon around the hospitals that treated contagious diseases at the beginning of the 20th century, or the determination of optimal spatial distances in the relation between the area where the facility is implanted and the site area, hospital facilities often have surrounding exterior areas that distance them from the urban area. Sometimes used as areas of reserve or for future expansion of facilities, these areas, often bordered by fences, they are rarely used beyond being a kind of buffer between the noise and bustle of urban traffic. In the buildings constructed during the first half of the 20th century by Bissaya Barreto, the paradigm of self-sustainability of hospital facilities was associated with the idea of perfect sanitary control of the agricultural production necessary for the maintenance requirements of the program. This led to consideration of the ownership of large, agricultural production areas or simply maintaining the surrounding ecosystems, as occurred with the Hospital of Sobral Cid, Chelas, National Leprosarium, and others. The programing and qualification of these areas, allowing the articulation between hospital facilities and urban spaced is a challenge that is not unrelated to the new understanding of the installations, the privilege of pedestrian accessibility, or arrival by other lighter means, and collective areas for the facility, and the role that these spaces may have for a situated use of the facility. The differentiation between the formal garden and the park, or the differentiation between the park and the ecological environment near the installation, are programing aspects for the surrounding spaces that need further definition, and which will allow clarification of the role of a hospital's natural spaces as a service to the community, and not just to its users.

Second, the new forms of project qualification highlighting future adaptability is a significant aspect. The ideal of spatially flexible hospital facilities has been recurrent in its design – as opposed to excessive functional specialization, but also, especially since the 1970s, due to the influence of metabolic architectural trends, among others. A paradigmatic example of this concept is the Canadian hospital designed by Eberhardt Zeidler (1926–), McMaster University Medical Center in Hamilton, Ontario, opened to the public in 1969. The Hospital is characterized by a set of infrastructure towers (elevators, stairwells, ducts), which form a grid available for various uses – wards, consultation offices, etc. The open character of the structure is an analog of a city layout; the atrium, for example, is designed as a public square. But in addition to the functional flexibility, more appreciated now after years of functional specialization by Modernism; this adaptability introduces a set of requirements of great relevance when we think about the processes of remodeling of a heritage hospital. Adaptability, in the repurposing processes of hospital installations, is

designed to last for a time. It is planning that must take ten, thirty or fifty years into account, contradicting short-term options and planning (which has had such bad consequence in hospital construction in Portugal over the last thirty years). Adaptability can be measured by a design that favors infrastructure adaptability, modular planning and functional adaptability. The changes that adaptability permits are, in view of changes in the type of patient, changes in clinical practice models, staff training standards, the progressive incorporation of information and communication technologies, or the diverse relationship in the redistribution of health services, diagnosis and treatment.²² Particularly the impact of technological developments in health care processes, and thus also in the buildings that house them, need to be considered in the adaptability of restoration.

Finally, we can think about the profound change that a concept of facilities centered on the user, and not on the service, has on rehabilitation programs. This profound change, the consequences of which we have not yet fully seen, implies the selection of an individual room during hospitalization, significantly increasing the dedicated areas if the capacity in number of beds is maintained, or on the contrary, greatly decreasing the capacity if the area is not maintained. On the other hand, this refocusing implies rethinking ways of displacing or expanding existing means of diagnosis, surveillance and the visiting of the patient-user, favoring new concepts of mobility of equipment and means of diagnosis (when possible), yet to be explored.

Resulting from a conception that seeks hospitalization as a last resort, favoring external consultation services, ambulatory surgery services, or even the day hospital, imply a new understanding of the equipment that favors the permeability in the relationship with the outside, profoundly changing the understanding of “single door” equipment. These permeabilities and external services imply an increase in the interface areas, and more specifically the service and waiting areas. The new spatial and architectural models of the large distribution hall with high ceilings, elevated and diffused lighting, with ample space, allows the diversification of service areas and comfortable conversation areas, for patients waiting for consultation or exam results. This is perhaps the concrete physical image of this new understanding of hospital facilities, opposed to the labyrinthine system, tight undifferentiated corridors, and interior waiting areas, now rarely equipped with a TV and where patients are compacted and concentrated, sometimes without proper regard for necessary air renewal or a hygienic distance.

In summary, the new understanding of hospital equipment may allow the qualification of heritage installations, for which it is necessary to have a deep knowledge of their equipment and an assessment of its potential and suitability for the new programs.

Notes

- 1 As the following notes referring to Hospital Heritage of the 20th century in Portugal, result from the research project *Cure and Care: the rehabilitation* (FCT-PTDC/ATPAQ1/ 2577/2014), coordinated by Professor Ana Tostões, from IST-CITUA.

- 2 See Susan Prasad (ed.), *Changing Hospital Architecture*, London, RIBA Publishing, 2008, and Stewart Brand, *How Buildings Learn – What happens after they're built*, London, Penguin Books, 1994.
- 3 Regarding the elaboration of programs, protocols and procedures, including evaluation, in health equipment, we refer to: *The Design Brief Framework for PFI Public Sector Comparators at OBC Stage*, October 2004, NHS Estates, Department of Health, UK.
- 4 Adaptive reuse is considered by US hospital managers. Although they do not share the strictly economic view of the authors, they refer to: James K. Elrod and John L. Fortenberry Jr. "Adaptive reuse in the healthcare industry: repurposing abandoned buildings to serve medical missions", in *BMC Health Services Research* 2017, 17.
- 5 The system has a double meaning here, as much as it refers to the relationship between pieces of a set in which each has a specific function, as it refers to the strategy of organizing public health in the contemporary state. The attribution to the state of the responsibility of organizing the health of citizens, stems from the Enlightenment vision that attributes "the greatest wealth of a nation, the health of its people", as António Ribeiro Sanchez says in his "Treaty on the Conservation of the Health of the People," published in 1756, anticipating 19th century hygiene treaties.
- 6 On health policy, or its absence, during the Estado Novo, see Luís Graça (2000), *The old policy of the Estado Novo on health*, and the master's thesis presented to FLUP by Daniela Cristina da Costa Ribeiro, *Saúde no Estado Novo (1933-1974)*, FLUP, 2018, supervised by Professor Jorge Alves, and Francisco Ferreira, *History of Health and Health Services in Portugal*, Lisbon, Fundação Calouste Gulbenkian, 1990.
- 7 Bissaya Barreto, in a 1935 article, describes this model of organization of mental health services, which would later be the origin of Law No. 2006, of April 11, 1945. See the detailed description of the "system" in Ricardo Jerónimo Silva, *Hospital and Assistance Architecture* promoted by Bissaya Barreto, PhD thesis presented to the University of Coimbra, Coimbra, 2013, I volume, 213.
- 8 See Sandra Xavier and Paulo Providência (coord.), *Leprosaria Nacional – Modernidade e Ruína no Hospital Colónia Rovisco Pais*, Porto, Dafne editora, 2013.
- 9 The appearance of the dispensary as an element of screening for disease in an urban environment arises from the proposal of the French bacteriologist Albert Calmette (1863-1933), when he created in 1901, in Lille, the anti-tuberculosis dispensary Émile Roux. In Portugal, despite the construction of the Popular Dispensary of Alcântara financed by Queen D. Amélia in 1893, the coverage of tuberculosis screening occurs with the construction of ANT's dispensaries, from 1934 on in the district capitals, according to a project by Carlos Ramos.
- 10 These two models of organizing the "fight" against the disease reflected two attitudes towards the problem of a disease whose transmission was not consensual, oscillating between considering it by contagion or by heredity. See Sandra Xavier and Paulo Providência, *ibid*.
- 11 The recent rehabilitation of this building for the Center for Rehabilitation Medicine in the Centro Region, however, is indifferent to the intentions of organizing the complex, not establishing a design strategy for the complex and managing the building's rehabilitation based on partial and punctual options.
- 12 On the relationship between 19th century positivism, hospital construction and nature healing, see Paulo Providência, *A Cabana do Higienista*, Coimbra, Darq, 2000.
- 13 See the section "Healing by Architecture", in Cor Wagenaar (ed.), *The Architecture of Hospitals*, Rotterdam, NAI Publishers, 2006.
- 14 About Sanatoriums in Portugal, see José Carlos Avelãs Nunes, *A Arquitetura dos Sanatórios em Portugal 1850-1970*, PhD thesis presented to the Universidade de Coimbra, 2017.
- 15 See Cristiane Passinho, *Estância Sanatorial do Caramulo: a Aculturação Experimental da Expressão Moderna*, Final Exam Bachelor's Degree, FCTUC-Darq, 2005.
- 16 The healing galleries of the early 20th century, already existed in the Sanatorium Sousa Martins in Guarda, a project by Raúl Lino from 1907, with metal pillars and slabs in plastered brick vaulting. The works to create the Parque da Saúde da Guarda did not proceed to the restoration of the old wards of the sanatorium, and are in decay.
- 17 António Pinto Santo, *O Combate à Tuberculose uma Abordagem Demográfico-Epidemiológica – O Hospital de Repouso de Lisboa (1882-1975)*, master's thesis presented at the History Department, Faculty of Letters of the University of Lisbon, 2010, 43, "Manuel Tapia, Spanish doctor and Director of the 'National Hospital for Infectious Diseases and Tuberculosis' in Madrid, and the 'Sanatorium of Fuenfria'", 52, highly influenced by German anatomical-clinical medicine, in a few years he gathered vast clinical and radiographic material that served as the basis for the elaboration of a treatise that would, for about a decade, be the reference textbook in the study of Pulmonary Tuberculosis.
- 18 In addition to sharing this restriction to galleries access, the Surgical Pavilion shares the location of the kitchen on its rear facade, to the north, like both the Santa Maria Sanatorium or the Abraveses Sanatorium in Viseu, built between 1932 and 1941 (see José Carlos Avelãs Nunes, 105). But contrary to the examples of Caramulo (Santa Maria and Cirurgico), the convalescent galleries of Abraveses have direct access from the wards, like the Sanatorium-Type model designed by Vasco Regaleira and adopted by Lopo de Carvalho in 1934, in João de Almada Sanatorium in Madeira and the D. Manuel II Sanatorium in Gaia.
- 19 André Tavares, *Arquitetura Anti-Tuberculose – Trocas e Tráficos na Construção Terapêutica entre Portugal e Suíça*, Porto, Dafne Editores, 2005.
- 20 The management has had some difficulty finding a use for the convalescent galleries to customize the experience of staying at the Hotel.
- 21 The most paradigmatic cases are the restoration and adaptive reuse carried out by Wessel de Jonge with Bierman Henket Architects, at the Sanatorium Zonnestraal (1928-1931), or the most recent restoration work carried out by Franz Graf and published in Franz Graf and Giulia Marino, *La buvette d'Évian: Maurice Novarina, Jean Prouvé, Serge Ketoff*, Gollion, Infolio Editions, 2018. Also, in this context, one may refer to the master's project by João Pedro Moura, *The Restoration of the Surgical Pavilion of Caramulo – Anchor project for the rehabilitation of the Sanatorial Estância of Caramulo*, Master's Thesis presented to the University of Coimbra, 2020.
- 22 See Douglas Olson, "Changing hospital design in the USA", in Prasad, S. (ed.) *Changing Hospital Architecture*, RIBA Publishing, 2008, 194-196.

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Paulo Providência

(Portugal, 1962) Educated as an architect in the Faculty of Architecture, University of Porto, and PhD at the University of Coimbra (UC). Associate Professor – Department of Architecture, UC, researcher – Centro de Estudos Sociais (Center for Social Studies), UC. Published *A Cabana do Higienista*, DARQ-UC 2000; *Leprosaria Nacional*, Dafne, 2013. Participant in the research project CuCa_RE / Cure and Care_ Rehabilitation.



Patrick Blanc, Vertical Garden, Rue d'Alsace, Paris, 2008. © Patrick Blanc.

Demedicalize Architecture¹

BY GIOVANNA BORASI AND MIRKO ZARDINI

Niccolò Machiavelli (1469–1527) long ago observed, “In the order of things it is found that one never seeks to avoid one inconvenience without running into another; but prudence consists in knowing how to recognize the qualities of inconveniences, and in picking the less bad as good.” Given these complex conditions of engagement, it is critical that the relationship between architecture and health be revised. While perhaps partly responsible, architecture is not always capable of providing positive solutions for the environment or the “sick” body. Instead, a confused and anxious contemporary architecture struggles to produce new manifestations that avoid exalting the spectacle of capital of the last twenty years. While architecture is looking once again into the ambiguous political, cultural, moral, and, above all, social ideas of health and medicalization for both justification and a new mandate, it should seek to challenge – rather than pacify – the newly emerging neo-liberal agenda and question a medicalized vision and approach toward health issues.²

We live in a state of pervasive anxiety. Every day, we are confronted with problems stemming from the energy crisis, the use of natural resources, pollution, decreasing biodiversity, climate change, new epidemics, the harmful effects of industrial production processes, and our consumerist lifestyles. We perceive our bodies as constantly at risk (from sources difficult to pinpoint) of contamination and disease. This increasing concern and obsession with health and well-being, mainly among urban populations in the West, is triggering an inevitable process of medicalization: a process in which problems are defined in medical terms and understood through a medical framework. As medical sociologist Peter Conrad (1945–) has written:

In the 1970s, the terrain of health and illness looked quite different from what we find in the early 21st century... Neither obesity nor alcoholism was widely viewed in the medical profession as a disease... [and] medical professionals have [since] identified several problems that have become commonly known illnesses or disorders.³

Today, our bodies are the subject and ultimate object of consumption. Health has become the number one priority as our faith in the steady progress and improvement of society at large erodes, giving way to lingering feelings of uncertainty and fear. We are so carried away by the idea of health that we have created a new moralistic philosophy: healthism.⁴ We place our trust in medicine and its promise of rational, scientific solutions, forgetting what Ivan Illich (1926–2002) noted in *Limits to Medicine* back in 1976, that no cure is “value free”: “Medicine is a moral enterprise and therefore inevitably gives content to good and evil. In every society, medicine, like law and religion, defines what is normal, proper or desirable.”⁵

Our health-obsessed society, however, offers diverse interpretations of health. For example, the idea of health

is no longer identified primarily with the absence of illness but has expanded to include a state of general well-being concerning all types of functioning, from physical, mental, and biological to social and cultural. Nevertheless, the ambition for total well-being is fragmented and parceled out in a series of policies and disconnected actions. The means to overcome old and new illnesses, the production of a new, healthier body to withstand (inevitable) deterioration, is today achieved through voluntary biomedical technology and individual efforts (“staying in shape”), supported by new environmental urban planning policies.

The distinction between a sick body and a sound body has also grown. Being in good health today seems to imply youth and athleticism. A healthy body is part of a new esthetic and erotic ideal, the product of concurrent medical trends, health policies, and individual choices, as medical historian Dorothy Porter (1954–) has observed.⁶ We are far from the welfare-state health policies that were developed during the postwar era to promote preventive medicine and establish good health as a social right of every citizen, in keeping with studies by British sociologist Thomas Humphrey Marshall (1893–1981) from the 1950s.⁷ Higher health care costs, reduced public services and spending, and the affirmation of an individualist rhetoric mean that today, health is increasingly considered an individual responsibility.

Contemporary architecture and urban planning seem to address, uncritically, the conditions and context in which this discourse on health is developing. In most cases, design disciplines prefer to rely on an abstracted, scientific notion of health, and very literally adopt concepts such as “population,” “community,” “citizen,” “nature,” “green,” “development,” “city,” and “body” into a professionalized, disciplinary discourse that simply echoes the ambiguities characteristic of current debate. Contemporary

- 01** MIT Agelab, AGNES (Age Gain Now Empathy System), 2011, suit calibrated to simulate the motor abilities, vision, flexibility, motor dexterity, and strength of a person in their mid-70s with multiple chronic conditions. School of Engineering, Engineering Systems Division, Cambridge, Massachusetts. © MIT Agelab, Photo Nathan Fried-Lipski.



- 02** Junya Ishigami, Kanagawa Institute of Technology Workshop, Kanagawa, Japan, 2008, view of Interior. © Iwan Baan.



- 03** Nerea Calvillo with C+ arquitectos and In the Air, In the Air, Toxic Topography of Santiago, Chile, 2008. © Courtesy of Nerea Calvillo.



- 04** The Canadian House Dust Study, Dust samples from 15 houses, Samples of indoor dust, soil and street dust, 1993. © Photo by Michael Woldemichael.

practitioners also prefer to ignore the fact that economic processes are closely intertwined with environmental processes and especially that concepts of the body, health, and sickness are products of history, politics, economics, and culture. To attempt to properly “diagnose” related problems of urbanism, we must not speak of health in abstract terms, but rather of various ideas and states of health. As Jonathan M. Metz (1964-) has noted:

“Health” is a term replete with value judgments, hierarchies and blind assumptions that speak as much about power and privilege as they do about well-being. Health is a desired state, but it is also a prescribed state and an ideological position.⁸

The City as Body

The metaphor of the city as a body consisting of variously functional organs has long been present in the discourse on architecture and the city, as particularly established, for example, by the work of both sociologist Richard Sennett (1943-) and architectural historian Manfredo Tafuri (1935-1994).⁹ In the 19th century, the city’s ill body was the

object of surgical transplants, such as the creation of green lungs – city parks meant to play a purifying, hygienic and educational role. Stagnant air, associated with odors and miasmas, was considered a primary cause of illness and infection. Air circulation had to be reactivated by means of incision into urban tissue: carving out wide, straight streets. These new arteries would form a continuous system of air circulation and traffic flow, eliminating obstacles such as the overcrowded slum, with its inner courtyards and blind alleys. Other metaphors followed over time, along with a continuous overhaul of paradigms and values; in the case of corridor-like streets, Michael Hebbert (1947-) observes that this seemingly healthful solution was soon perceived as the source of every urban ill.¹⁰

Today, the regeneration of the urban “body” is enacted via new “medical” techniques and procedures. The medical metaphor of tissue regeneration has replaced that of surgery. Normal tissue, represented by buildings and urban hardscape, has become the focus of both esthetic and therapeutic treatment. Today, green is thought of as a diffuse and continuous salve-like surface application, a new skin of

vegetation that replaces or envelops exposed (manmade) surfaces and especially buildings. *Façades* and roofs are re-naturalized by the application of a thin epidermal layer of plants, selected to increase bio-diversity. In some cases, a certain medical treatment seems necessary. *Façades* become adaptive, even reactive – able to not only reflect changes in the surrounding environment but also interact with it, assuming a restorative role by drawing off airborne particles and dust and at the same time producing a new esthetic.

The city's damaged tissue – polluted areas and landfills – is the object of treatments aimed at purifying land, water and air, reclaiming industrial areas, or transforming refuse as part of the urban body's metabolism. And green does not stop at a building's surface: it also penetrates the interior, to give the impression of living everywhere with nature. A new reality is produced from these metaphors of interior space, as in the sparse forests evoked by Junya Ishigami (1974-).

In a society like ours, so thoroughly enchanted by the myth of "nature," it is not surprising to discover the wide-ranging dissemination of green. And by assimilating green the built environment aspires to craft a body that is ideal or at least in good health, apparently re-naturalized or better yet, embedded in nature. The presence of green seems to be the antidote to problems caused by an urban lifestyle, increasingly considered "unnatural" and therefore harmful.

The City as a Cure

Today we live in a new historical-environmental context, in which the clear antagonism between the purity of nature and the contamination of the city have been brought to a crisis:

The long history of creative destruction on the land has produced what is sometimes called "second nature" – nature reshaped by human action. There is now very little, if anything, left of the "first nature" that existed before humans came to populate the earth.¹¹

According to David Harvey (1935-), we now inhabit a "second nature," or an environment profoundly marked by human presence and, as a result, creative destruction. Thus, refuge in nature is no longer a plausible solution. Yet uncertainty remains about both the healthfulness of life in the open air and the comforts of a protected, enclosed space – we don't know which is less unhealthy.

The Healthy Cities project, under the auspices of the World Health Organization (WHO), was initiated in Western Europe in the mid-1980s. It met with instant success and spread rapidly. The project is based on the belief that the dysfunction of cities and inequality of access to health care can be remedied by science, rational planning, education and community participation. Still, as sociologists Alan Petersen and Deborah Lupton emphasize, the basis of this project remains the modern notion of the city as a sick body in need of healing.¹²

Today the (post-industrial) city may be considered an agent capable of delivering treatment and perhaps producing a new urban age through myriad potential

opportunities. The majority of projects aimed at transforming the relationship between environment and health today are not only taking place in the city but achieved by means of the city's structure – its density and critical mass foster many initiatives. Walking rather than driving, using public transportation, riding a bicycle, growing food through techniques of urban agriculture and vertical farming and aging in place are but a few of the plans put into action. These strategies also acknowledge the city as an appropriate instrument of well-being. From comprehensive planning, proposed still today as a means of incorporating various public health issues into traditional urbanistic tools; to the Berkeley Institute of Design proposal by Ryan Aipperspach, Ben Hooker and Allison Woodruff for domestic restorative environments to relieve stress and problems related to the pervasive use of technology; to Toronto's Responsive Architecture Lab which studies how diffuse technologies can generate a better environment for human health; to Nan Ellin's (1959-) "Path Toward Prosperity" that takes advantage of the potential and resources existent in an urban structure;¹³ to New York City's *Active Design Guidelines*,¹⁴ promoted by Mayor Michael Bloomberg (1942-) to radically transform the city's lifestyle, new tools and approaches to urbanism demonstrate how the city is not only a place of concentrated population as well as social, environmental and health problems, but can also be a productive agent capable of delivering solutions.

Therapeutic Architecture

Open-air schools, social housing, vacation residences, hotels, gyms, parks, productive gardens, beaches and swimming pools: the architecture of the first half of the 20th century produced a new set of typologies, or reformed existing ones, in the name of sunlight, air, water and nature – elements that embody modern ideals of health and hygiene. As remarked by historians Paul Overy (1940-2008), Beatriz Colomina (1952-), and Margaret Campbell in her essay *Strange Bedfellows: Modernism and Tuberculosis*,¹⁵ a great many of these new buildings included features such as large windows and terraces open to nature, that first appeared for therapeutic purposes in early sanatoria. Modern architecture was predicated on ideas of health and medical practices that developed as a result of illnesses like tuberculosis. In reality, sanatoria did not offer a truly effective therapy. Dorothy Porter has noted that eighty-five percent of patients released from English sanatoria eventually died of tuberculosis, a disease that was only defeated years later with the introduction of vaccines and antibiotics.¹⁶ The role of the sanatorium was to prevent the spread of contagions by isolating patients and eventually preparing them for the return to normal life. Thus, the new buildings and their open spaces represented modern architecture's strength in configuring a "symbolic" space, if not actually curative, for the new human of the 20th century. It was in this new esthetic that European social democracy found its mode of representation.

At present, many designers and architects work with "second nature" materials, which usually include degraded or altered natural elements that can no longer produce

the pristine architecture imagined by the moderns. But instead, all this dust, refuse and contaminated soil provide new materials for conceptualization, elaboration and use. Today's strategies offer architecture, urban planning and landscaping a different role, in the form of a double reclamation that on one hand repairs the environment and contributes to the responsible use of a region's resources, and on the other gives the architect or designer the chance to fulfill a new therapeutic function, by widening their approach to include variables typically under the responsibility of public health. This therapeutic function is limited to the most obvious features of a region's pollution, and can be achieved by means of sophisticated architectural solutions such as the *façades* that absorb urban dust in Kayt Brumder's project Breathing Room, or buildings with forms that evolve along with a polluted urban landscape, as in François Roche's project Dustyrelief F / B-mu. Connecting structural elements with simple technical spaces creates a new set of responsibilities; for New York City's manifesto-like *Active Design Guidelines*, specifically-sited stairs and corridors stimulate the everyday physical movement sedentary bodies need, so as to combat mounting global conditions of obesity and to prevent the loss of muscle mass due to aging. These spaces also serve to connect a building's users socially. As hospital design expert Roslyn Lindheim (1921-1987) demonstrated in the studies she conducted with epidemiologist Leonard Syme (1932-) in the 1980s, those who become sick most easily or fall into a high-risk category when subjected to high levels of stress are "in some way 'out of connection' and lack meaningful social and natural connectedness."¹⁷ Stairs and corridors therefore effectively encourage fitness as well as providing preventive measures with respect to other types of illnesses caused by social-isolation and under-stimulation.

At the same time, therapeutic architecture as a possible form of treatment requires the direct, active participation of the ill. A building that encourages or "forces" you to take the stairs to burn calories, or an engaging city that coerces its inhabitants to walk instead of taking the car or the bus contribute to a healthier city and counter the problem of obesity at the same time. But this treatment is effective only if the "patient" consents to participate, both physically and on a decision-making level. With this approach, there is a danger that the organization of a building or the design of public space unquestionably ensures a treatment's effectiveness.

Fit Buildings / Fat Buildings

Not only our bodies but also the buildings we inhabit must be healthy.

According to *The Smart Growth Manual*, a healthy building should be made of suitable materials with low volatile organic compounds, and be equipped with an adequate ventilation system.¹⁸ It should protect us from radon emissions and water infiltration and prevent the formation of humidity.

These standard precautions are an extension of the modern idea of a hygienic, sanitary building in which new materials and equipment are analogous to connective tissue

or a medical prosthesis.

Like contemporary bodies, contemporary buildings are challenged to be not only healthy but also fit. A fit building is one that keeps us in shape, training us to adopt healthy behaviors; taking the stairs instead of the elevator, for example. These choices favor a certain group of users but cause difficulties for others. A fit building presupposes that its users are able-bodied or else they will suffer exclusion from its spaces. While architecture now produces spaces to meet the requirements of an aging or handicapped population, in a radical paradigm shift it also reintroduces devices to increase physical strength and promote longevity. Furthermore, we no longer rely on specialist spaces, gyms and practice rooms to host voluntary physical exercise but instead incorporate activity into the organization and design of space itself.

Even a building's image must be fit. It is not enough to suggest the idea of cleanliness with the color white or expansive plate-glass windows. A building must convey the esthetic of an athletic body: bold and robust. Emphasis is no longer placed on the structural skeleton but rather on movement and muscular mass, and the display of toned contours, connective tissue and tendons.

In reality, muscle buildings cover ever fatter bodies. Our dwellings are constantly growing larger; as is the space we occupy to store our belongings, despite the decrease in size of the nuclear family. Between 1990 and 2003, the surface of houses in Australia increased by sixty percent; in the United States, the increase was fifty percent. In 2005, storage space in the United States – what Tom Vanderbilt has nicknamed the "Great American Self Storage Empire" – totaled, 1.875 billion square feet (174 million square meters).¹⁹ And according to Elizabeth Farrelly (1957-), the suburbs have become "McMansionlands."²⁰ This swelling epidemic is spreading everywhere with rising standards of living and increased consumption. Not only regarding our bodies but also our buildings, we may speak of the phenomenon of "globesity," as defined by historian Sander L. Gilman (1944-).²¹

On a much larger scale, this phenomenon also concerns the indiscriminate use of land. The territory overrun by urban sprawl in the past sixty years now has the character of another bloated body, supported by an inadequate and deteriorating internal structure. The skeleton is too fragile; urbanism's arteries and vital organs struggle to support an engorged body mass.

The Ill-Adapted Body

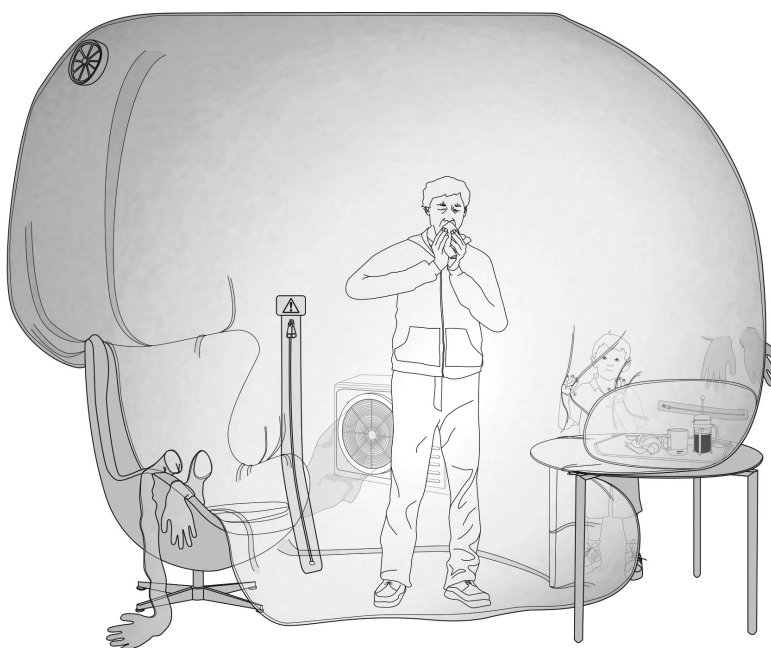
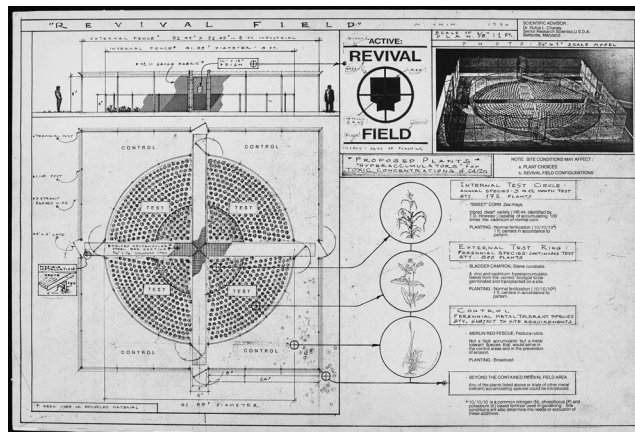
According to some scientists and doctors, our bodies are not biologically suited to cope with the sudden environmental changes they have been subjected to in recent decades.

Contemporary life is lived almost entirely indoors. What, when and how we eat and drink have changed radically with the new model of industrial food production. New chemicals included in medicines, detergents, pesticides, paint and perfumes, and genetically modified crops are constantly in development. The volume of highway, rail and air traffic has increased exponentially with the desire

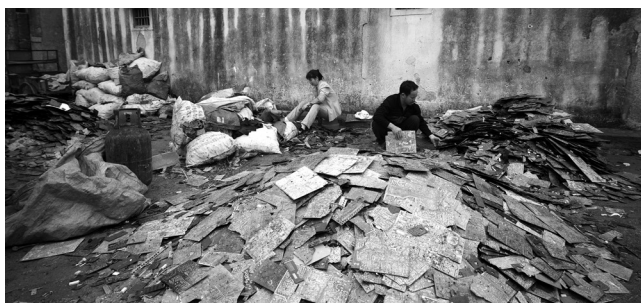
- 05** Fachkliniken Nordfriesland, Riddorf, Germany, 2005, environmental unit, emission-free metal room. © (Unknown photographer) EU Hospital Projects & Fachkliniken Nordfriesland GmbH.



- 06** Mel Chin, Revival Field, Minneapolis, Minnesota, 1990, plan and section with details of test plants, blueprint on paper, mounted on foam board, 48.3 x 71.8 x 0.6 cm, study collection Walker Art Center, Minneapolis, S1996.2. © Mel Chin.



- 07** David Garcia Studio, Domestic Isolation Room, 2010, inflatable unit after inflation. © David Garcia Studio.



- 08** Armin Linke, Computer Dmo, Guiyu, China, 2005. © Armin Linke.



- 09** Bas Princen, Mokattam Ridge (Garbage City), Cairo, Egypt, 2009, chromogenic print color print, 157 x 187 cm. © Bas Princen.

to travel everywhere and faster. We surround ourselves with technological objects that save us time and especially energy (that is, the consumption of calories). Physical movement is no longer part of everyday reality for the majority of workers. Movement is contained by, and only for some, a forced yet supposedly enjoyable exercise regimen.

The presence of technology – in all its expressions and ramifications – as a tool for managing the human body's passage through this rapid environmental evolution places us in a post-human reality, a new era where the distinction between what is human and non-human is blurred.²²

Some fear that a constant reliance on technology and presumed technological improvements might conceal other dangers. For example, in the 1940s geographer Ellsworth Huntington (1846-1947) cautioned that perfecting an environment dominated by climate control may mean that we “cease to increase our physiological adaptation to environmental conditions.”²³ Groups such as Design for an Aging Society and the MIT AgeLab have spent years researching techniques to make life easier for Young-old, Senior-old and Old-old by means of new technology. The MIT Agelab recently created a suit named AGNES (Age Gain Now Empathy System), a sort of new human form calibrated to simulate the motor, visual and strength capacities of a person in their mid-seventies. AGNES can be used to test any type of new design aimed at the needs of this particular age group. But the inherent risk in this approach is that to design objects, dwellings and areas of the city to reduce strain on AGNES might in fact age younger bodies by minimizing the strength and friction between them and the environment.

The effectiveness of architecture's therapeutic function must be subjected to trial verification. In the 19th century, cases of medical self-experimentation can be found in which doctors used their own bodies for cultivating bacteria and subsequently testing experimental remedies on themselves. As Gayle Nicoll and Craig Zimring observe in their careful study of the Caltrans District 7 Headquarters designed by Morphosis in Los Angeles, which adopts a skip-stop elevator system (serving every other floor) and favors stairs, it is impossible to assess whether this new model will have any consequences for user health.²⁴

Cure or care

The size and characteristics of the body we inhabit today are very different from those of a century ago, or even a half-century ago. Anthropometric measurements first indicated by industrial designer Henry Dreyfuss (1904-1972) in the late 1950s no longer seem to satisfy contemporary shapes. Dimensions have changed so much that various projects are underway to scan the new male body, for example, so as to properly define men's clothing sizes. According to fashion manager Umberto Angeloni (1952-):

*Traditional men's sizes derive from measurements taken at the time of the WWII, when men were very different... We are still trying to dress men of the third millennium according to the bodies of their grandfathers.*²⁵

Meanwhile, physical and athletic performance has improved. Life expectancy is longer, particularly in Europe, Japan, and North America. Building a different body not only prolongs life but also produces a new humanity, with new concerns and values. We think about family and sex differently and face new intergenerational conflicts. And we conceive of our own lives not as a single duration but as a sequence of many possible lives.

While modernity's idea of progress was tied to general cultural, moral, economic, and material advancement, today progress is concentrated in the improved performance of individual bodies.²⁶ Pursuit of the “good life” in the 21st century is a quest for pleasure, attainable through various available modes of consumption. This finds its fullest expression at a certain period in our lives – the “golden years” of retirement, when we are free of the constraints of family and work but are not yet eroded by the body's deterioration. For a privileged subset of society, at this age, they live permanently at leisure, fulfilling both the utopian visions of the 1960s avant-garde and an ideal consumerism. And like all utopian visions, that of the American and European residential retirement community, too, depends on certain degrees of segregation.

The medicalization of our society speaks of nonmedical problems in medical terms. And according to Peter Conrad,

*The key of medicalization is definition. That is a problem is defined in medical terms, described using medical languages, understood through the adoption of a medical framework, or “treated” with a medical intervention.*²⁷

Architecture and urban planning have since undergone a parallel process; they rely increasingly on medical rhetoric to describe problems and arrive at solutions defined in the medical milieu. An ever-increasing number of urban, environmental, and architectural problems are treated as medical, and remedies are sought in increasingly specific solutions. Tailoring requirements to particular groups of ill, or presumably ill, individuals leads to conflicting, contradictory solutions, and finally to the even greater segregation of various demographic groups. In this sense, architecture – subject to medicalization – should itself be considered a “sick” body.

Architecture and urban planning have adopted the bellicose stance of Western medical rhetoric, aiming to “combat” illnesses, viruses, and stress. Other attitudes have been neglected, such as the simple activity of listening, which homeopathic specialist and entrepreneur Christian Boiron (1947-) considers fundamental for understanding the real crises of which “illnesses” are only a symptom. Or Nan Ellin's suggestion for a process of improvement based on potential present within a territory, rather than the notion of treatment.

Nevertheless, medicalization remains a bidirectional process. Though it can be described as a phenomenon of incremental development, having occurred in our society during the last century, the reverse process is still possible. And demedicalization has successfully occurred in some

cases, for example with regard to homosexuality and masturbation.²⁸

The demedicalization process, if applied to architecture, might allow the discipline to escape the ambiguity and moralism of contemporary ideas of health by taking both problems and solutions out of the realm of individual commitment and restoring them more appropriately to social surroundings. In this way, it might be possible to recover one's capacity to be critical with respect to public health policies; to take part in the debate while renouncing the allegedly rational, scientific solutions prescribed by a medical idea of health. As architects Kersten Geers (1975-) and David Van Severen observe in their theoretical project for a healthy city, the most significant shift for architecture and urbanism will be from the idea of *cure* to the idea of *care* – in the process of taking care of our bodies and our environments.

Notes

- 1 This text is an excerpt from a longer version published in the book's introduction *Imperfect Health: The Medicalization of Architecture*, co-published by the CCA and Lars Müller Publishers, 2012.
- 2 Giovanna Borasi and Mirko Zardini, "Demedicalize Architecture", in *Imperfect Health: The Medicalization of Architecture*, Montreal: Canadian Centre for Architecture; Baden, Lars Müller Publishers, 2011, 15-37.
- 3 Peter Conrad, *The Medicalization of Society: On the Transformation of Human Conditions into Treatable Disorders*, Baltimore, Johns Hopkins University Press, 2007, 3.
- 4 Jonathan M. Metz and Anna Kirkland, (eds.), *Against Health: How Health Became the New Morality*, New York and London, NYU Press, 2010.
- 5 Ivan Illich, *Limits to Medicine. Medical Nemesis: The Expropriation of Health*, London, Marion Boyars, 1976-2010, 45. Significantly, Ivan Illich and Michel Foucault, contemporary philosophers both born in 1926, developed the most in-depth critique of medicine and the process of medicalization during the 1970s.
- 6 Dorothy Porter, *Health, Civilization and the State: A History of Public Health from Ancient to Modern Times*, London, Routledge, 1999.
- 7 Ibid., 233.
- 8 Metz and Kirkland, *op. cit.*, 1-2.
- 9 Richard Sennett, *Flesh and Stone: The Body and the City in Western Civilization*, New York, W. W. Norton, 1994; Manfredo Tafuri, *Sfera e labirinto: avanguardie e architettura da Piranesi agli anni '70*, Turin, Einaudi, 1980.
- 10 Michael Hebbert, "A City in Good Shape," *Town Planning Review* 7, No. 4, Liverpool University Press, October 1999, 433-453.
- 11 David Harvey, *The Enigma of Capital and the Crisis of Capitalism*, London, Profile Books, 2010, 184.
- 12 Alan Petersen and Deborah Lupton, *The New Public Health: Health and Self in the Age of Risk*, London, Allen & Unwin, 1996.
- 13 Nan Ellin, "Your City Yourself", *Imperfect Health*, Montreal, Canadian Centre for Architecture; Zurich, Lars Müller Publishers, 2002, 251.
- 14 New York City Department of Design and Construction, Department of Health and Mental Hygiene, Department of Transportation, Department of City Planning, *Active Design Guidelines: Promoting Physical Activity and Health in Design*, New York, City of New York, 2010.
- 15 Margaret Campbell, "Strange Bedfellows: Modernism and Tuberculosis", *Imperfect Health*, Montreal, Canadian Centre for Architecture, Zurich, Lars Müller Publishers, 2002, 13.
- 16 Dorothy Porter, *Health, Civilization and the State*, London, Routledge, 1998, 284.
- 17 Roslyn Lindheim, "New Design Parameters for Healthy Places", *Places* 2, No. 4, April 1985, 17.
- 18 Andres Duany, Jeff Speck and Mike Lydon, *The Smart Growth Manual*, New York, McGraw-Hill Professional, 2009.
- 19 Tom Vanderbilt, "Self-storage Nation," *Slate Magazine*, posted 18th July,

2005, http://www.slate.com/articles/arts/culturebox/2005/07/selfstorage_nation.html (accessed: 15th August 2011).

- 20 Elizabeth Farrelly, *Blubberland: The Dangers of Happiness*, Cambridge, MIT Press, 2008, 99-102.
- 21 Sander L. Gilman, *Obesity: The Biography*, Oxford, Oxford University Press, 2010, 159-172.
- 22 Roberto Marchesini, *Post-Human. Verso nuovi modelli di esistenza*, Turin, Bollati Boringhieri, 2002.
- 23 Marsha E. Ackermann, *Cool Comfort: America's Romance with Air-Conditioning*, Washington DC, Smithsonian Institution Press, 2002, 144.
- 24 Caltrans is the California Department of Transportation. See Gayle Nicoll and Craig Zimring, "Effect of Innovative Building Design on Physical Activity", *Journal of Public Health Policy* 30, No. S1, 2009, 121. "Construction costs from eliminating four elevator stations on eight floors were offset by the construction of the open staircases. Differences in elevator energy and maintenance costs or health outcomes derived from stair use have not been reviewed."
- 25 Persivale Matteo, "Rivoluzione tagile: Uman scansiona mezzo milione di corpi", *Carriere della Sera*, 17th September 2011, 45. Free translation.
- 26 Hervé Juvin, *The Coming of the Body*, London, Verso, 2010, 8.
- 27 Conrad, *op.cit.*, 5.
- 28 Ibid., 7.

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Giovanna Borasi

(Italy, 1971) Architect, editor, and curator, Giovanna Borasi, has been the director the Canadian Centre for Architecture (CCA) as of January 2020 and its Chief Curator (2014-2019) and Curator, Contemporary Architecture (2005-2010). Borasi studied architecture at the Politecnico di Milano and her work explores the impact of contemporary environmental, political, and social issues on urbanism and the built environment. Among her publications and exhibitions are *Imperfect Health: The Medicalization of Architecture* (2011); *The Other Architect* (2015), and her latest curatorial project is a three-part documentary film series that considers changing definitions of home and homelessness.

Mirko Zardini

(Italy, 1955) Architect, author and curator, Mirko Zardini, was the Director of the Canadian Centre for Architecture (CCA) from 2005-2019. Zardini studied at Istituto Universitario di Architettura di Venezia and his research engages with contemporary architecture by questioning and re-examining assumptions on which architects operate today. Among his publications and exhibitions are *Asfalto: Il carattere della città* (2003); *Imperfect Health: The Medicalization of Architecture* (2011); and *It's All Happening So Fast: A Counter-History of the Modern Canadian Environment* (2016); and a forthcoming anthology of his collected writings.

Charles Fulton: the regional reach of Modernism in Australia

BY PAUL SANDERS AND MARISSA LINDQUIST

Charles Fulton (1905-1987) was an Australian architect who applied influences of European Modernism, particularly the civic architecture of Willem Dudok, into the design for several hospital projects in regional towns across Queensland, at the same time adapting a climatic responsive rationale to the projects.

As with many remote contexts that have been overlooked by a European and American centric focus upon Modern architecture, the account of Australian Modernism has not been widely acknowledged outside its borders, despite a local momentum to effectively document and publish its achievements. Compounding this predicament, Queensland has suffered from its own exclusion relative to the southern states of New South Wales (Sydney) and Victoria (Melbourne), which have always been the dominant centers of the national profession, its conferences and publications.

This paper seeks to address these schisms through the presentation of the work of Fulton, demonstrating how even in remote areas of Queensland, thousands of kilometers from major cities, the reach of Modern architecture found a place. Mobilized by the national federal body, the Office of Health and Home Affairs, drive to improve health services across the country post WWI, Fulton became a leading architect to modernize health facilities and brought about a cultural shift in the reception of Modern architecture across the regions.

Modern Influences

The *Brazil Builds* exhibition that was held at MoMA in New York in 1943 represents a demonstrable declaration of how modern architecture in the southern hemisphere had differentiated its approach to that in Europe and America through responses to local climatic conditions. The exhibition showcased projects adapting the modern style, including health buildings such as the Santa Terezinha Tuberculosis Sanatorium in Salvador, Bahia which exemplified innovations in concrete construction.¹ The regional adaptation of modernism developed gradually in Australia, beyond the initial assimilation of foreign examples, towards innovation in the plastic properties of concrete to respond to local ways of life, conditioned by climate and context. By the 1930's there was "great interest in new building types and new ways of dwelling."² The impetus of Modernism was championed early on by Robin Boyd³ who promoted

the search for a local architecture appropriate to its place, its landscape and city, mindful of local materials, climate and construction practices.⁴

An important early exponent of the adaptation of European Modernism in Australia was architect and educator Charles Fulton (1905-1987), who made significant contributions from the 1930s onwards through a series

of hospital and residential projects in regional Queensland towns. Fulton was

one of the main architects responsible for introducing the international style to Queensland. He experimented with this style combining it with an interest in climatic design.⁵

At the beginning of his career, Fulton spent a few years working in practices in London, from where he made regular excursions to mainland Europe; the most notable being visits to the Netherlands to see the work of Willem Dudok (1884-1974), and also the 1931 *Paris Expo* which he claimed "opened my eyes to modern architecture."⁶ Several of Fulton's projects were published in local professional journals, and received meritorious architecture awards from the Royal Australian Institute of Architects Queensland Awards Programs,⁷ these confirmed the esteem and peer recognition among the local profession. Despite these accolades, very little contemporaneous national recognition was observed,⁸ and only recently has his work been retrospectively and more broadly acknowledged in the account of Australian architecture.

The Australian modern hospital holds a pivotal place both in the development of Australian modernism and in the advancement of Australian health. The years between 1930 and 1950

represent the great hospital building era in Australia, when hospitals became an identifiable building type of their own and design of which became the province of specialist architectural firms.⁹

Fulton's emerging practice corresponds closely with the early Modernism that arose from the other major Australian centers in Sydney and Melbourne. In this respect the work of Stephenson and Turner, and Leighton Irwin, received wide acclaim for pioneering Modernism primarily through the program of government investment in modernizing health facilities across the country.¹⁰ Arthur Stephenson had undertaken research trips to the United States of America (USA) and Europe in the late 1920s and early 1930s to observe the latest advances in hospital development. This first-hand knowledge placed the firm Stephenson and Turner as leading experts in the field of hospital design, and many major commissions followed.¹¹ Their design for the Ballarat Base Hospital (1933-1936) "echoed the fine brickwork of Willem Dudok's Hilversum Town Hall (1928-1930)" which Stephenson had visited while traveling.¹² Dudok achieved striking compositional strength in his buildings through the use of brick solids, and horizontal lines through the positioning and detailing of windows, parapets, and canopies. Monumentality was often expressed in the placement of a vertical tower in juxtaposition to asymmetrical grouping of open blocks "scaled according to their different functions."¹³

John ("Maxwell") Freeland (1920-1983), sets out in his definitively titled book *Architecture in Australia: a history* (1968) an expansive account of architectural development. Within the chapter "Early Modern" (1930-1944) Freeland discusses the concerted momentum of mostly young architects towards the new ideas of Modernism,

to some who could follow the essentials, it was the opening of a new window on architecture. To the few who really understood, it was a transcendental way of life that offered hope for all the ills which had ranked architecture for nigh on a hundred years.¹⁴

The main schools of influence were

... partly Dudok, partly Wright, and partly Le Corbusier. It was constructivist, organic and mechanical, all at the same time... It was plain and made up of simple individual elements... put together in an austere cerebral way.¹⁵

Indeed, Dudok's Hilversum Town Hall was cited in "The West Australian" newsprint as early as 1929, as an example "abstract massing"

and “cubistic” architectural innovation underway in Holland as part of review of “New Buildings Abroad.”¹⁶

In *Australian Architecture 1901–51: Sources of Modernism* (1980), Donald Johnson (1930–) observes the trend of Australian architects undertaking travel scholarships, or journeying under their own initiative, to the projects of the “international style” first hand that had been celebrated in either international or local journals. Sydney Technical College graduates Frank Costello (1903–1987) and Sydney Ancher (1904–1979) went “car touring” in Europe and were “impressed by the work of the Dutch architect W. M. Dudok in Hilversum.”¹⁷ On his return, Ancher immediately began working on “streamlined modern buildings”¹⁸ and would be recognized as a “leader of the Modern Movement in architecture in Australia,”¹⁹ Costello became City Architect and Town Planner in Brisbane, where he executed several transport and municipal buildings strongly influenced by Dudok.²⁰ The influence of migrants to Australia, who had either worked or studied within the sphere of the new architectural milieu also added impetus to the momentum of the movement within the country.

Whilst national architecture has been largely underrepresented in the “blind spot” of many global books on modern architecture,²¹ the work of Fulton has suffered from Australia’s own reticence to look beyond its major centers. Despite the important historical contributions of Freeland and Johnson there appears a distinct under-representation outside of Sydney and Melbourne of modernist projects that had been prospering in parallel to these “centers”. This schism has been recently rectified largely in conferences, journals and several publications such as: *Hot Modernism: Queensland Architecture 1945–1975*;²² *The Encyclopedia of Australian Architecture*;²³ *Australia: modern architectures in history*;²⁴ and *Australia Modern: architecture, landscape & design*,²⁵ though reference to Fulton remains limited.

It is into this context of oversight at a national level, and by implication further afield, that the career of Fulton is of importance. Both a practicing architect and educator his significant projects span a decade from 1935 before he consolidated his position within the Brisbane Central Technical College as part-time Head of Department for the Diploma of Architecture, through to his architectural practice partnerships which flourished under the leadership of fellow practice partners.²⁶ Several case study projects are presented as evidence of the development of Modernism in the regions, from an initial close assimilation to European exemplars, through to the emergence of a hybrid adaptation in response

to local climatic conditions and the innovations in concrete construction.

Charles Fulton: The early years

Fulton undertook articulated training as a pupil with Sydney architect F. E. Stowe (an architect and civil engineer, 1867–1936) while studying at the Sydney Technical College.²⁷ He obtained a Diploma of Architecture from the Sydney Technical College (STC) in the late 1920s where “he and fellow students were aware of the changing trends occurring in architecture overseas”²⁸ through their access to international journals. Although classical architecture was being promoted at the STC as the preferred canon, students were nevertheless experimenting with modern designs.²⁹ He registered as an architect in New South Wales in 1931 and later Queensland in 1936.³⁰ The propensity for neo-classical architecture dominated practice in Australia at that time, which limited Fulton in finding a practical outlet for his interest in the changing architectural dynamic that was occurring elsewhere in Europe and America. Due to the economic depression that had taken hold in 1931, Fulton decided to head overseas and arrived in England.³¹

Fulton settled in London and worked as a draughtsman in the architect’s office for the large department store chain called Barkers.³² The relative design freedom ranging from entire retail outlets to fit-outs, displays, and furniture afforded great opportunity for modern expression in the work. As such, Fulton regarded the working environment as “tremendously stimulating.”³³ Using London as a base he frequently traveled through Europe to gain first hand contact and experience with buildings that were gaining a reputation across the continent. Fulton’s interest was particularly drawn to the Netherlands, and the buildings of architect Willem Dudok,³⁴ and he made a “pilgrimage” to visit the Hilversum Town Hall (1924–1928) which had been “influential in Britain and Australia in the early thirties.”³⁵ Indeed, Fulton was the beneficiary of a personal guided tour around Hilversum by Dudok himself, which gave him an intimate insight into the work,³⁶ and lasting impression that would make a direct relationship in his early work.³⁷ Undoubtedly, the work undertaken by Dudok would have also indicated the propensity for regional areas to adopt Modern architecture and town planning.

Early practice in the employ of J. P. Donoghue

After two years in London, Fulton returned to Australia in 1933 and settled in Brisbane following the introduction and recommendation of a family member to the firm of Hall and Cook where he commenced employment³⁸ but soon found “working on classical

details disheartening, given his exposure and enthusiasm for the ideas of modern architecture.”³⁹ Consequently, Fulton changed employer in 1934 and began working for J. P. Donoghue who was an established architect still working along traditional stylistic lines, but who had a very strong client network particularly with hospital and school governing boards. He was however receptive to Fulton’s “first-hand observations of the new functionalist style emerging in Europe that had transformed his work.”⁴⁰

Based on developments overseas, the design of hospitals in Australia had begun to transform towards a technical and functional approach that would adopt

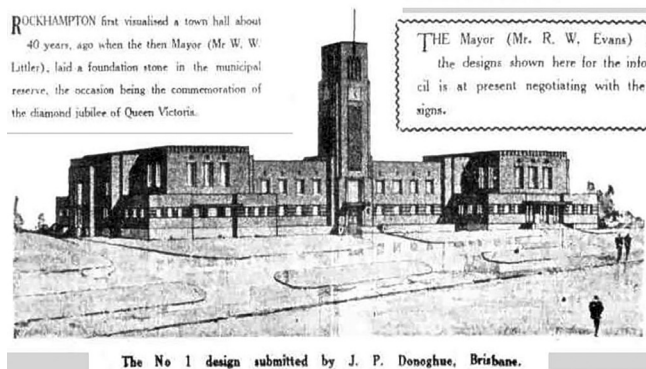
*a centralized system of administration, abandoning the old pavilion-style hospital with its dispersed, separate buildings, each of which was almost an independent unit. The consolidation of these wards into large blocks made them easier to manage and service, even allowing the reticulation of oxygen and other facilities, but it also raised the problem of providing sufficient natural light and ventilation.*⁴¹

Donoghue began designing a new hospital for Stanthorpe in 1935, a regional town over 200 kilometers (km) inland from Brisbane, the state capital of Queensland, and had applied the new model for the modern hospital design and its functional planning. However, it was Fulton who subsequently brought a new architectural language to the series of regional commissions that would follow. Two projects in particular allowed scope for Fulton to promote his ambition for Modern architecture, these were the competition design for a New Town Hall for Rockhampton in 1935, and in the following year, the commission for a doctor’s house in Stanthorpe, a design that “would bring the firm national attention.”⁴²

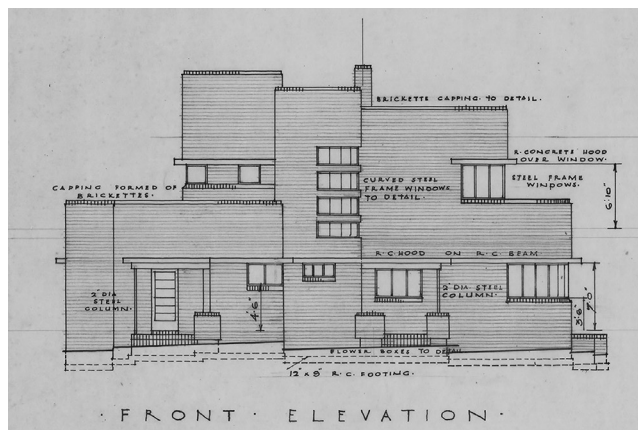
Rockhampton Town Hall (1936 designed)

In 1936, J. P. Donoghue was invited to a limited competition along with three other architects to submit plans for the design of a new town hall for the regional town of Rockhampton. The influence of Dudok’s Hilversum Town Hall upon the design is striking, specifically the similar format of Dudok’s strong massing with horizontal and vertical interplay. While Dudok’s Town Hall articulates an asymmetric composition, Fulton’s proposal enjoys symmetrical planning around the central clock tower. Despite the project not proceeding, Fulton had established himself as a capable designer within Donoghue’s practice which would allow him latitude to develop in the emerging modern tendency.

- 01 Rockhampton Town Hall, competition drawing submitted by J. P. Donoghue, 1936. © Source *The Morning Bulletin*, 1937.



- 02 Plans for a proposed residence at Stanthorpe for Dr Masel. J. P. Donoghue Architectural drawings, UQFL225. © Source: The University of Queensland Fryer Library.



Masel Residence, Stanthorpe (1936-1938)

In the same year, Fulton undertook the design for a doctor's residence and consulting rooms in Stanthorpe, presumably while Donoghue was primarily occupied with the town's new hospital, and was his first opportunity to design a building in the idiom by which he was so strongly captivated.

*Solid, cubic and monumental a dynamic asymmetric composition is created by the contrast between different building elements; curved corners are juxtaposed against right angles, horizontal proportions against the verticality of the staircase and carefully composed windows, emphasized by the fine horizontal planes of projecting concrete awnings, highlight the planar qualities of walls.*⁴³

An imposing two-story brick building gave form to an "abstract monumental façade"⁴⁴ as a "striking and very intact example of the interwar functionalist style,"⁴⁵ that typically incorporated architectural elements of

*asymmetrical cubic massing, expanses of undecorated brick walls, steel corner and strip windows, curved brickwork corners, flat cantilevered awnings and a concealed roof.*⁴⁶

The organization of functions in the residence is arranged by open-plan whereby the living spaces occupy the favorable north-easterly aspect relating directly to a garden terrace and garden beyond. The ground level floor also incorporates the doctor's consulting rooms that are independent of the main house, internally linked via a discreet connection, with clients' access from a separate street entrance. The upper floor is occupied by the three-bedroom family home that enjoys good daylight and ventilation with the main bedroom opening onto a balcony with a garden view.

The attention to climate is already stated in the design for the Masel residence, The Queensland Heritage Register notes that,

*unlike most Queensland houses, the Stanthorpe house was designed to suit the cold climate of the granite belt. Later buildings designed by Charles Fulton show more adaptations to the generally hot Queensland climate.*⁴⁷

The materiality of the house is predominantly achieved through the use of a red-brown face brick to external walls of various bonding to emphasize elements such as the curved wall. Additionally, windows and doors are steel framed that add to the buildings functional and industrial esthetic.

The Masel Residence achieved the Meritorious Architecture Award (RAIA) retrospectively in 1948. More recently, the residence was entered into the Queensland Heritage Register (2005) as a significant architectural project. The citations draw attention to its importance as one of the first house in regional Australia in the Modernist Style and its subsequent affect (sic) on the evolution of Modern architecture in Queensland.⁴⁸

In Partnership with J. P. Donoghue (1937-1946)

Following his impact on the design outputs of the practice, and the positive attention to the Masel residence, Fulton entered partnership with J. P. Donoghue in 1937, three years after he commenced working in the firm as an architect. In parallel, Fulton had been teaching design and history at the Brisbane Technical College as a part-time lecturer (since 1936), and by 1937 he was appointed as Lecturer in Charge of the Diploma in Architecture, thereby embarking on a combined career in practice and education that he would sustain until retirement.

Kingaroy Hospital (1938-1939)

The first major hospital project completed by Fulton through which he could "truly express himself"⁴⁹ was at Kingaroy, 200 km north-west of Brisbane, and was "arguably the first truly modern hospital building in Queensland,"⁵⁰ as it was a radical departure from the traditional "pavilion" style plan for hospitals that were being constructed in the early 20th century.⁵¹

*In Queensland, the public were perfectly happy to worship in churches designed on a medieval model, but nobody wanted to be treated in a medieval hospital. For healthcare, everyone wanted the latest and most sophisticated facilities possible, and they presumed that they would find them in a hospital built in a new and striking ultra-modern style. Fulton had seen this style at first-hand in Europe, and was keen to work with it.*⁵²

The building was a two-story complex with the design layout comprising the wards in two wings radiating out from a central block. "A design feature of the planning was the narrow wards (just two beds wide)"⁵³ with both wings flanked by a wide verandah to facilitate natural ventilation, shade, and a relationship of indoor to outside that was a characteristic of the local climate. Indeed, the prominent balconies would be a constant in the hospital buildings Fulton would design from this point onwards.

"The building was modern in every way – planning, stylistically and in the integration of services,"⁵⁴ with the inclusion of a maternity ward into the main building for the first time in hospital design in Queensland.⁵⁵ Fulton was also commissioned to design the Administration and Staff Quarters buildings in 1941; once again the first of this typology in the modern idiom.

Recently, a new building has been constructed in front of the original hospital

03 Sketch view of Roma Hospital c1940.
© Source: *Courier Mail*, 1940.



thereby disconnecting the building from its original and prominent civic relationship.

Roma Hospital 1940

The Roma Hospital was completed in 1940 and adopted a similar planning approach to the Kingaroy Hospital,⁵⁶ with perpendicular wings to the main central block.

Fulton again asserts a confidence in the architectural form and design language through the brick and concrete detailing, further evidence of the regional adaptation of “Dudokian” architectural form to local climatic conditions. The balconies on the north-easterly building orientation provide shade to the interior wards encouraging connectivity with the outdoor climate from the patients’ wards and rooms.

As with the Kingaroy hospital, a challenging new addition to the hospital complex has subsequently been added which disconnects the main façade frontage of the Fulton building from its original street and civic relationship. Furthermore, Fulton’s building is currently under threat of demolition for imminent hospital redevelopment as the building is yet to be protected under the Queensland Heritage Register.

Townsville Hospital (1938-1951)

Following a series of regional hospital base projects and maternity blocks, and Donoghue’s considerable reputation and influence in the hospital boards of Queensland, in 1938 Donoghue was appointed to the Hospitals Board at Townsville (1300 km north of Brisbane) as “an independent expert to advise the board on modernizing their hospital.”⁵⁷ From this role he was able to secure the commission in 1940 following the presentation of “several drawings of a modern design”⁵⁸ which have been largely attributed to those of his partner Fulton. The Townsville Hospital provided accommodation for over 250 patients, with “165 Public Ward beds, 45 Intermediate Ward Beds, and 53 Private Rooms.”⁵⁹ Its entry vestibule was lined with Queensland maple, and provided access to the hospital boardroom, administrative offices, main staircase, passenger and services lifts.

The hospital is a significant early example of a high-rise hospital “the largest facility of

04 Roma Hospital in 2019, detail of vertical stair window. © Source: Paul Sanders.



05 View of Townsville Hospital. © Source: Lloyd Jones with permission from RAIA collection, John Oxley Library, SLQ.

its type in Australia outside a capital city.”⁶⁰ The strong influence of European Modernism that Fulton applied in the design is apparent

*through its simple geometry of horizontal and vertical elements, wide cantilevered balconies with rounded corners, flat roof concealed behind parapets and its plain surfaces.*⁶¹

It embodies functionality and the technical servicing and operation of the building and its site”, and the “integration of the hospital into its urban tissue.”⁶² During its construction, the hospital was beset by a shortage of materials post war, and was subsequently opened more than a decade later in 1951.⁶³ Nevertheless, the

design of the hospital undoubtedly developed from national innovations in concrete construction; “pre-mixed concrete companies were established to become placed amongst the most advanced in the world.”⁶⁴

The functional layout principles that had been established throughout Australia to hospital design in the late 1930s and applied by Donoghue at the Stanthorpe Base Hospital formed the rationale for the Townsville Hospital design. The principal spatial arrangement was the

central services, the elimination of central corridors (to improve ventilation), long open balconies, curved at the ends, these providing the

strong horizontal lines of the exterior which were disrupted by pronounced verticals, especially above the central entrance.⁶⁵

Consistent with the series of early hospital projects the building is arranged symmetrically around a central core tower that establishes the vertical entry point. The projecting balconies provide shade for the wards, designed “open air” specifically for tropical conditions, provide superb outlook across Cleveland Bay and Magnetic Island, and combine to emphasize the building’s horizontality.⁶⁶ The emergence of lightweight balconies in Fulton’s work resembles the similar architectural device deployed by Alvar Aalto (1898-1976) at the Paimio Sanatorium (1929-1933),⁶⁷ and indeed the Santa Terezinha Tuberculosis Sanatorium in Salvador, Bahia included within the *Brazil Builds* exhibition.

A new hospital for Townsville was subsequently established in 2001, south-west of the city center to accommodate the growing population. The original Fulton hospital building has been since redeveloped into an apartment building named *Fulton Gardens*, its adaptability an attribute of the narrow building planning, good natural lighting and cross ventilation, ideal for residential repurposing.⁶⁸

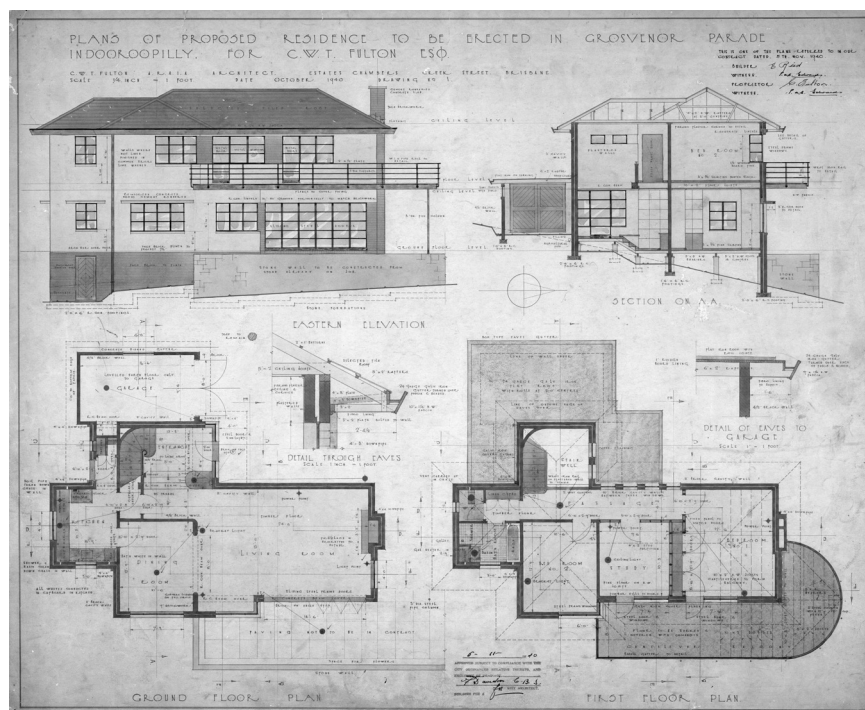
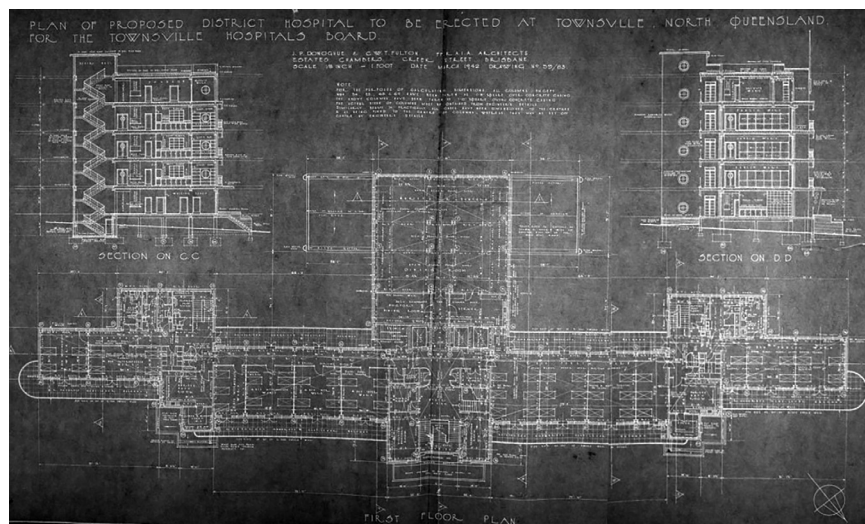
Fulton Residence in Indooroopilly (1939-1940)

The Fulton Residence won the 1948 Royal Australian Institute of Architects Queensland Chapter award for meritorious architecture.⁶⁹ Its architectural composition is consistent with the Masel Residence in the asymmetrical massing and interplay of horizontal and vertical elements using face brickwork, steel windows, and “the eschewing of internal decoration and an interest in designing for a sub-tropical climate.”⁷⁰ The prominent balcony with curved end borrows from the formal articulation of his hospital projects. The Queensland Heritage Register notes that:

*The house demonstrates how, in the interwar period, European architectural ideas were transferred to Australia and modified to local conditions. The Fulton Residence is an important building in the evolution of domestic architecture in Queensland.*⁷¹

A noticeable departure from buildings that Fulton had designed up to this point is the incorporation of an overhanging tiled roof with the eaves gutter concealed behind a broad fascia board, expressed well beyond the line of external walls. This is a further adaptation away from the direct imitation of European influences to acknowledge local climatic conditions. Heavy Queensland rainfall necessitates the practical discharge

06 Plan of proposed district hospital at Townsville (1942). © Source: Fulton Trotter Architects Archives.



07 C. W. T. Fulton Architectural drawings. UQFL224, plans for a proposed residence at Grosvenor Parade, Indooroopilly. © Source: The University of Queensland Fryer Library.

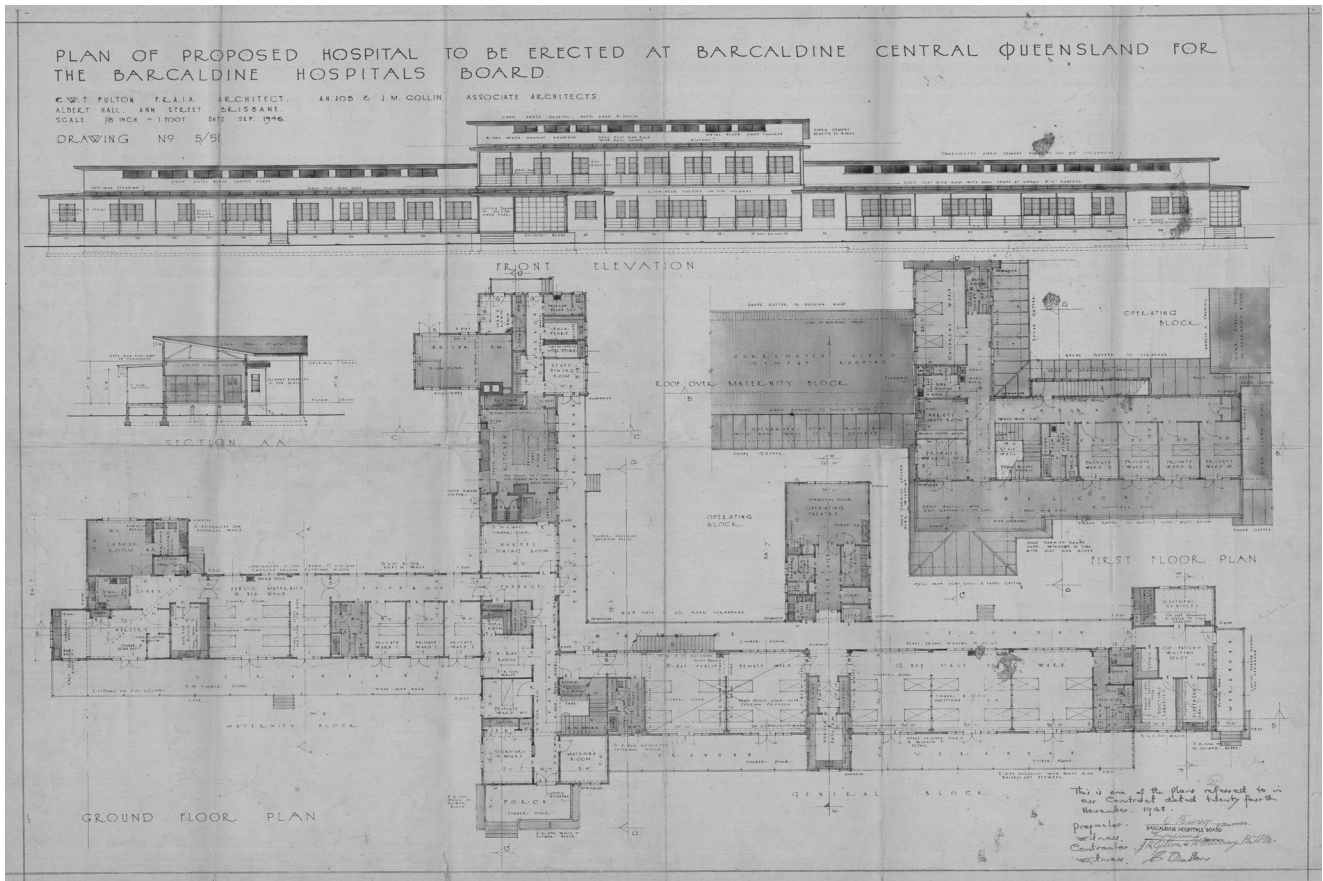
of storm water overflow beyond the interior of the building. A pronounced pitched roof would be a consistent feature of subsequent iterations of Fulton’s architectural practice with new partners Aubrey Job (1907-2002) and Jim Collin (1936-2013), and later Stephen Trotter (1931-2015), Jack Gilmour and Frank Moss,

*buildings [which] were characterized by low-pitched roofs, linear planning, cross ventilation, wide eaves or awnings and the use of modern materials.*⁷²

The practice of Job Collin and Fulton (1946-1956)

Following the dissolution of Donoghue & Fulton in 1946, Fulton formed a partnership with Job and Collin.⁷³

*Charles brought his hospital contacts at Kingaroy, Charleville, Blackall, Barcardine and Clermont to the new partnership and these formed the base for [the] firm’s ongoing practice in western areas.*⁷⁴



09 Interior view of Charleville Hospital (1939), typical internal arrangement whereby extensive glazing allows the penetration of natural light and ventilation.
© Source: Fulton Trotter Architects Archives.



10 Barcaldine Hospital Nurses Quarters in 1919. © Source: Paul Sanders.

Hospitals in the early period were governed by individual boards which meant that decisions were made locally, making individual relationships particularly important. The firm was able to develop these relationships through regular “design clinics” of the regions to visit clients, local councils and local communities. These tours would involve thousands of kilometers of road travel undertaken on a monthly basis and shored up a presence of the firm within the regions. The routine visits to the regions became central to the practice model, and continued until well into the late 1990s. This unique approach to client service undeniably retained project work within the regions, adapting remote communities such as those in the north-west of the state to the new climatic innovations observed in modernist building.

Barcaldine Hospital main block and Staff Quarters (1948-1953)

The Barcaldine Hospital project represents a distinctive development of the functional arrangement of an asymmetrical form with perpendicular services wing incorporated into a cruciform plan. The ground level floor main wards extend laterally either side of the central entrance with generous verandahs either side to aide ventilation and connectivity with the landscape setting.

The hospital base building established, like others, a modern facility for a remote regional town, over 1000 kilometers north-west from Brisbane. Economical materials and

building systems were therefore a necessity. The interplay of solid building form softened by elegant lightweight verandah elements provides indoor-outdoor climatic comfort for patients, and also give the building its dominant horizontality and relationship to the landscape. Light structural posts are incorporated to support the projecting verandah roofs, and ventilator grilles are an explicit climatic device set below the ridge line of mono-pitched “skillion” roofs, and provide a rhythm to the façade.

In the early 1990s, a comprehensive national capital works program for health services resulted in widespread investment in new and redeveloped hospital campuses.⁷⁵ Three hospital upgrade commissions returned to original projects at Barcaldine, Clermont, and Emerald that had been “designed in the fifties by a previous generation of the practice,”⁷⁶ became the catalyst and impetus for what is now Fulton Trotter Architects. In the phase two facility at Barcaldine, the new layout sensitively “echoes” the original Fulton building with a mirrored layout of contemporary forms – differentiating the two historical phases materially with brute honed blockwork and integration of internal courtyard spaces to provide light deep within the plan. A recent field survey, undertaken by the researchers and current practice directors, found all three hospitals to be in very good functioning condition, thriving as a regional health facility due to the success of the master-planning and conservation strategies.

Conclusion

Fulton is regarded as a key practitioner and teacher of modern trends in architectural design in Queensland during the 30s and 40s.⁷⁷

Charles Fulton was a pioneer within Australia concerning the integrated application of Modernism through practice (1937-1980) and architectural education (1936-1971). Furthermore, he adapted international Modernism, particularly that of Willem Dudok, into an Australian context.⁷⁸ His portfolio of projects established a regional reach of Modernism and “took advanced modern architecture to remote settings,”⁷⁹ at a time when an extensive program for the delivery of new hospital facilities enabled contemporary health services to be accommodated within the new architectural approaches to planning and form.

In parallel, he had a longstanding thirty-four years’ leadership of architectural education at the Central Technical College in Brisbane whereby the study day release of students from full-time employment imbued practical knowledge in design strength in the graduates. He was responsible for the curriculum development and expansion of the history of architecture, and design studios within of the Diploma Course. Subsequent to his retirement, and in recognition of his contribution to architectural education, the Queensland University of Technology bestowed the name *Charles Fulton School of Architecture* on its facility.⁸⁰

Fulton established an important practice with a series of talented architects that was renowned for its design innovation, adaption of modern principles to local conditions within regional Queensland, and as a place where individuals learnt about becoming an architect. He was a highly regarded man, who treated clients, builders, employees, professional partners, and students, all with an even respect, a legacy that has been maintained throughout and into the culture of the current practice of Fulton Trotter Architects.

Acknowledgements

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Paul Sanders

Professor of Architecture at Deakin University in Australia. His research interests are in the topics of Regional Modernism, Urban Morphology, and Intergenerational Living. He has been an academic since 1998 and has been published in international journals in the fields of architecture and urban design. Paul established his expertise as an architect in professional practice (1988-2003) having extensive design experience through built work, as well as international design competitions. His research is in the field of urban morphology, and completed a PhD titled "Consonance in Urban Form: The Architectural Dimension of Urban Morphology".

Marissa Lindquist

Award winning architect and lecturer at the School of Design, Queensland University of Technology. Marissa is Chief Investigator of Cat 1 NHMRC Grant 2019: An Inter-generational Learning and Living Campus: A New Model for Healthy Senior Living and Integrated School Communities across Urban and Regional Australia. In 2008 she was awarded the National Dulux Study Tour for emerging architects in Australia. She formed part of the editorial team for the international IDEA Symposium (2010) entitled Interior Spaces in Other Places Brisbane, Australia, and is recognized for her creative practice through publication within the 2012 Venice Biennale Australian Pavilion. In 2017 Marissa was awarded a Women in Research Grant QUT. Marissa is currently undertaking her PhD focusing upon neuro-imaging, architecture + emotion. Her teaching practice dwells on the margins of interiority, perception and material making.

DOCUMENTATION ISSUES

Spanish Pantheon in Rome. A permanent abode

BY ÁNGELA GARCÍA DE PAREDES

The Spanish Pantheon in the Campo di Verano was entrusted to three resident artists at the Academy of Spain in Rome in 1957: architects José María García de Paredes (1924-1990) and Javier Carvajal (1926-2013) and sculptor Joaquín García Donaire (1926-2003). They proposed an open space devoid of religious symbols apart from the chapels around it. This work explores a new direction that moves away from the usual funerary monument: a symbolic space composed of two planes in equilibrium laid out on a smooth platform where there is no distinction between sculpture and architecture. This place is for those who take time to pause here, a permanent abode, to spend time with the absent and the present.

Spanish Academy of Fine Arts in Rome

The Spanish Academy in Rome has a magical ability to forge bonds between all those who have lived there since its foundation in 1873. This bond between successive generations of resident architects in the studios and galleries of the Academy defies reason. Overlooking Rome from Janiculum Hill, near Bramante's perfect Tempietto, the Academy of Rome became an escape route to Europe from Spain's closed perimeter for a few privileged architects in the 1950's. Their long two-year sojourns in Rome also gave them a close-up experience of the classical world and the historic city – a window that opened onto new architecture. José María García de Paredes (1924-1990) arrived in Rome in March 1956, coinciding with Carvajal¹ but after Ramón Molezn² (1922-1993) had left.

*The view of Rome from the Academy terrace is indescribable. All the pomp built up in Rome over the centuries unfolds before your eyes in astonishing wonder. The grey domes of the churches, countless heavily Baroque churches, emerge above the city's Sienna red roofs. The patches of green gardens rise up in the form of Roman umbrella pines, so characteristic, so musical...*³

This description of the view from the Academy is part of a five-page text by a journalist dispatched to Rome, Juan Ramírez de Lucas (1917-2010), which details the long history of the Academy and its illustrious residents. He focuses on the Director at the time, the Marqués de Lozoya (1893-1978), and others who went before him, including Valle Inclán

(1866-1936), and lists the artists in residence: Painting: Francisco Echauz (1927-), Rafael Reyes (1924-1984) and José Beulas (1921-2017); Sculpture: García Donaire (1926-2003) and César Montaña (1928-2000); Engraving: Jesús Fernández Barrio (1921-2005); Music: Miguel Alonso (1925-2002); Architecture: José María García de Paredes and Javier Carvajal.

The Roman experience, journeys across Europe and the Academy's importance as a host for encounters between the various arts combined to make a powerful impact on the way these residents understood architecture and its relationship to the other arts. Valuable ongoing knowledge about the outside world gained in the Academy and its transmission to an introspective nation was the common denominator amongst the young residents who made the most of their period in residence to complete their training. Before them, Fernando García Mercadal's (1896-1985) long sojourn from 1923 to 1927 shaped a decisive link with modern European architecture, and afterwards, Rafael Moneo (1937-), a resident between 1962 and 1965, exemplified the knowledge and value of history in his new architecture. Indeed, Lafuente Ferrari (1898-1985) described García de Paredes and Carvajal's generation as "artists of their time".

The Academy of Spain in Rome stands atop Janiculum Hill, overlooking the city beside an old Franciscan convent whose courtyard holds a veritable gem, Bramante's Tempietto. Nobody who has been here even just once in their lifetime can ever forget the marvelous spectacle spread out at their feet of the Roman city, crowned by domes and dotted by towers. The history of Western culture is displayed here for the benefit

*of those who are able to sense these things... The work by the current painters and architects in residence shows that solid discipline and training are compatible with talent and creativity. These descendants of a brilliant tradition also know how to be artists of their time, aspiring to produce personalized work without imitating the obsolescent.*⁴

Spanish Pavilion at the Venice Biennale

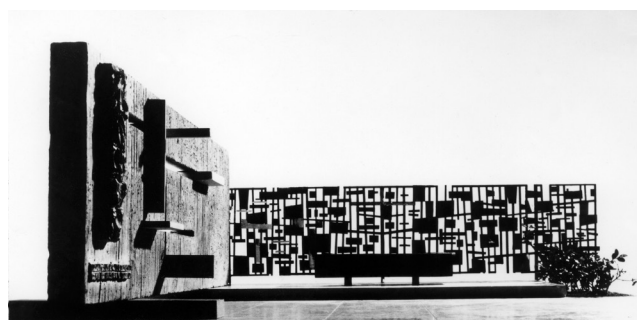
Carvajal and García de Paredes were nominated as Residents at the Spanish Academy of Fine Arts in Rome by the Examination Board on 28 September 1955. The project they both competed for was the Spain Pavilion at the Venice Biennale, with a simple brief: two rooms for painting and sculpture exhibitions with their respective annexes within a 50 meter per side square. The proposed theme was close to the heart of the then Deputy Director and later Director of the Academy in Rome, Joaquín Vaquero Palacios (1900-1998), who in 1952 had renovated the old Spanish Pavilion in the Giardini di Castello, Venice. The projects by both young architects were decidedly modern. Carvajal's proposal,⁵ with constructivist overtones, organized the spaces artistically, in continuity, installing several platforms on the ground level floor for the sculpture exhibits and resolving the building with a single roof. García de Paredes' project, with a disciplined abstraction derived from a structural module, spread outwards with walls that trap the open space with expressive wrought iron gratings, as he explains in the summary:

*The specific conditions of each room are diametrically opposed, originating in the same intrinsic characteristics – sculptural forms in two and three dimensions – as Painting and Sculpture. The former, necessarily laid on a flat base, requires constant, uniform, diffuse lighting. The latter is more flexible and requires a mass of direct, variable, strongly contrasted light in order to appreciate the plasticity of its three dimensions. Paint is very delicate, and requires total isolation from potentially harmful agents. Sculpture, on the other hand, can usually withstand such agents, and is sometimes specially designed to stand on its own, unprotected from them.*⁶

From his early sculptural Córdoba Chamber of Commerce and the first Aquinas, both brilliant projects designed in conjunction with Rafael de la Hoz (1955-), García de Paredes refined the lines he drew until he arrived at an elementary expression of his forms, digging down to the source of the issue in search of the right solution, as he was to do in all his projects. He installed the Sculpture room in the outward-facing basement, extending the exhibition on platforms out towards the gardens.



01 Model of García de Paredes' proposal for the Spain Pavilion at the Venice Biennale, 1955. © JMGP archive.



02 Model of the Spanish Pantheon, 1957. © JMGP archive.

His design for the Art room was closed, superimposed on the sculpture room and top lit through modular skylights in a chessboard pattern set on a structural grid which included a sunlight diffuser and artificial lighting as well. Externally, the Pavilion was constructed with anodized aluminum panels which,

from an expressive point of view, have the advantage of enclosing a slender, aerial structure which seems extremely light psychologically.

The project was drawn with precise lines, cross-hatchings and shadows cast in black. The zigzag mesh of the roof grid, enveloped peripherally by orthogonal planes, was not manifested on the flat, quiet facades of the building, which brought the structure to the surface in a similar way to his subsequent work on churches in Almendres and Malaga.

The project summary continues:

Its personality as a representative Spanish building in the international competition in Venice requires a careful choice of elements which can individualize and characterize it as an image of our current Architecture. It is based on the idea of updating a supremely traditional aspect of Spanish art with an exquisitely delicate treatment. For this end, we have outlined two strong vertical planes in wrought iron which border the main sides of the Pavilion. They create veiled transparencies and partially block the view of the interior from the outside. A stone shield – perhaps taken from an old palace in Salamanca or Ávila –, a metal lintel in a vivid color and a black flagpole highlight and define the main entrance to the Pavilion.⁷

It is not clear whether the stone shield proposed for the entrance, “perhaps taken from an old palace”, set above a free-standing metal lintel, should be regarded as an artefact like the cherubs on the facade of the Church in Malaga, included to facilitate the building permit, a collage, or a reference to history in a modern building which does not wish to ignore the past. The plane marked by the

iron fence sieves the view of the interior and frames the entrance courtyard, brings to mind the brass and steel fence in the subsequent project for the Roman Pantheon.

Grand Tour

The projects for the Venice Pavilion by these two architects in residence sowed the seed of a collaboration which began in Rome in 1956 with the construction of the Spanish Pantheon and the 11th Milan Triennale, and continued with Our Lady of the Angels church in Vitoria (1958-1960) and the School of Telecommunications Engineering in Madrid (1960-1964).

The Academy in Rome consolidated not only a deep friendship but also acquaintances with other artists and architects met during the Milan Triennale and their Grand Tour of Europe in the company of Vaquero Turcios in August and September 1957, after completing their work on the Spanish Pantheon.

The constant journeys taken by Academy residents around Italy and Europe were a great source of information and understanding about the situation outside Spain. Carvajal and García de Paredes were no exception. They visited locations and buildings in many European countries and gained first-hand experience of the continent's new architecture. Their documents, letters and memoranda contain further details about their Grand European tour, which was planned on the basis of the arrangements they made at the Milan Triennale in July to visit work sites of other participants, as the Memorandum for the Academy explains:⁸

Under the Spanish Academy's regulations for architects in residence during their second year in Rome, we received funds to undertake a thorough, detailed study trip through Austria, West Germany, Denmark, Sweden and Finland, returning through Denmark and East Germany to Berlin and ending in Belgium and France. The priceless opportunity of such a trip is without a doubt the most interesting experience of any architect's two years stay here. It fills out our experience of the classical sediment and the serene harmony of

Italy's historic legacy with knowledge about the current European architectural situation.⁹

The tour was decidedly modern. García de Paredes, his wife Elizabeth Falla (1932-), a young Joaquín Vaquero Turcios (1933-2010) and Carvajal somehow crammed themselves and their luggage into García de Paredes' car, a brand new white SEAT 600, for a journey of several thousand kilometers in August and September 1957. The photographs of the Grand Tour reflect a great journey through the history of European architecture by young enthusiasts on a sort of forerunner of an Erasmus scholarship, building multipolar relationships with people in the countries they visited and forging a close bond with each other that was to last forever.

Spanish Pantheon

In November 1956, García de Paredes, Carvajal and sculptor García Donaire were invited by the Ambassador to the Vatican, Fernando Castiellax (1907-1976),¹⁰ to design the Spanish Pantheon in the Campo di Verano cemetery. The three young residents, immersed in the Roman atmosphere, worked closely together with enthusiasm and dedication on an unexpected commission that brought the integration between architecture and sculpture to life.

Although both architects were awarded a two-year scholarship period in Rome in 1955, they coincided at the Academy from March 1956 until the summer of 1957. The preparation and design of the project was therefore done jointly, while the construction and detailed work, blessed in November 1957, was monitored more closely by García de Paredes, as evidenced by newspaper articles and successive photographs of the site works.

The draft project for the new Spanish Pantheon was presented to the Spanish Ambassador in January 1957. Drafting of the detailed plans started in April 1957, and their work on the Pantheon was completed in Rome's intense July heat, after returning from the official opening of the Spanish Pavilion at the 11th Milan Triennale. Carvajal went back

to Madrid at the end of the European tour. In early November, they were awarded the *Triennale Gold Medal* and immediately afterwards, on 10 November 1957, the Pantheon was officially opened. On March 3, Spain's ABC newspaper published a long essay by the Academy Director, Juan Contreras, Marqués de Lozoya, about the Pantheon project and the Spanish burials in Rome. The historian provided a detailed description of the burials that had taken place in Rome, noting that,

The ancient Spanish Pantheon in a city which can boast the most lavish funeral scenery in the world – where any Patrician or citizen before or after Christ gave instructions for their buried in tombs that a king would envy for his final resting place – consisted of a simple marble tombstone.

He went on to explain the origins of the commission awarded to the three residents at the Academy, and described the project and its symbolic meaning:

Today's architecture seeks beauty in the precise proportions between the masses and a balance of lines, always contingent to its architectural function. In its disdain for superfluous ornamental fronds, it is highly appropriate for expressing the Christian idea of death as a liberation from matter.

The Marqués de Lozoya's article was also published in *L'Osservatore Romano* on 11-12 November, coinciding with the opening of the Pantheon, in this case translated into Italian as *Architettura e nel nuovo scultura Mausoleum degli Spagnoli*. It was preceded by a news item about the Pantheon blessing ceremony presided by the Bishop of Teruel and the mass in the nearby Basilica of Saint Lawrence outside the Walls. Surprising, the Italian text by the Marqués de Lozoya, like the ABC article on November 10, made no mention of the joint authorship by Carvajal, by then back in Spain, just as some more recent essays fail to mention García de Paredes. The documents about this delightful work preserved in García de Paredes' archives in the form of clippings, photographs, sketches and letters, reveal the truth about the dates and authorship. All three Academy residents were involved in the project from the initial ideas to the actual project for the new Pantheon in the Summer Field cemetery, on a site where, since 1944, there had only been a large crypt covered by a simple marble headstone. In 1952, this was the burial place of philosopher Jorge Ruiz de Santayana.¹¹ They embarked on a thorough study of his work in search of an idea that could be interpreted artistically. "Christ has given us access to the glorious

freedom of the soul" were the words finally chosen to be etched forever on the concrete wall of the Pantheon.

In April 1956, García de Paredes took several beautiful pictures on his visit to the ruins of Hadrian's Villa and the Forums in the company of García Donaire and Miguel Alonso, a musicologist also living at the Academy. He already knew that he wanted to create a scenario for the Pantheon that would blend architecture and sculpture, without the latter being a mere appendage or ornament. And so the Spanish Pantheon in Rome was designed by García Donaire, Carvajal and García de Paredes as a perfect union of the two arts, matching the ideas of the three residents manifested in an open space, a courtyard free of religious symbols other than those of the surrounding chapels. In this project, they explored a new direction in which the result was distanced from a funerary monument, and instead became a symbolic space composed of two planes in equilibrium, laid out on a smooth platform. They debated the importance of Santayana and the most appropriate form for the crosses in honor of those who were buried there. The crosses were finally merged with the concrete wall on one side of the Pantheon: multiple intertwined crosses with small ledges jutting out for offerings and flowers. On the wall, the hands that tightly grip the base gradually release their hold as they move up García Donaire's sculpture, opening up to the sky in the form of doves. There is no distinction between where the sculpture begins and where the architecture ends on this concrete wall, or whether or not the horizontal plane of the Pantheon is actually a podium to rest two sculptures, one in concrete and the other in steel mesh, as García de Paredes explains in his Memorandum for Grand Prix of Rome.

I have approached the complex issue of the relationship and adaptation between the visual arts and architecture as a social factor of a spiritual nature. There is undoubtedly a close relationship between them, and their most flourishing periods have coincided over the centuries. Today there is a healthy trend moving in the same direction. However, if this union is to be perfect, we need to be aware of the trends in the auxiliary arts, their techniques and the problems and aspirations of their creators. This is the only way to shape a team of men striving for a common goal, with shared aims and ambitions.¹²

Today it is hard to find the Pantheon amongst the Roman pines. Almost nobody remembers where it is. Following the guard's instructions, traveling through time, one finally arrives at the small opening in the reinforced concrete wall with powerful chiaroscuros

and a beautiful iron and bronze gate. The vertical planes are set on a taut horizontal plane, reminiscent of the items arranged in the Forums which form a unitary whole. Stepping onto this 10 x 7 meter horizontal plane, we discover a travertine pavement broken down into rectangular pieces, reminiscent of church tombstones, and a sense of being in an unroofed room between two different walls, one opaque and the other an iron fence on which a few bronze pieces glitter when scanned by the eye. This precinct is exposed to the sky of Rome, like a garden, with views of its cypress trees. It has same sense of tranquility as a Mediterranean home. Interior and exterior merge and the Campo di Verano and the burials disappear from view, in the words of the Marqués de Lozoya, "...in a life that is no longer troubled by the fear of death". Nevertheless, I prefer to think of the Spanish Pantheon as a beautiful open room in a garden where you can see the sky and listen to the birds and the silence, a place which is more for those of us who take time to pause here, a permanent abode, to spend time with the absent and the present.

As Ramírez de Lucas said of the Pantheon,

Life is a form or mode of matter; the soul is a suite of characters by virtue of which there is a certain equilibrium. All these capital ideas of Santayana's philosophy have been captured in the hardest of all interpretations: architecture. The beauty of a monument or a work of architecture in general does not reside in its size, its cost or its rich, sumptuous materials. It lies in something more simple, poetic and difficult: the harmony of proportions, the skillful play of volumes, the surprise of the resolution and the originality of the result.¹³

Perhaps in the same way that modern architecture managed unwittingly to bring beauty to the simplest and most mundane places, it also brought a sense of tranquility free of monumentality to monuments. In this case, a Pantheon – the Spanish Pantheon –, a monument *par excellence* in architecture, is transformed into a beautiful permanent abode.

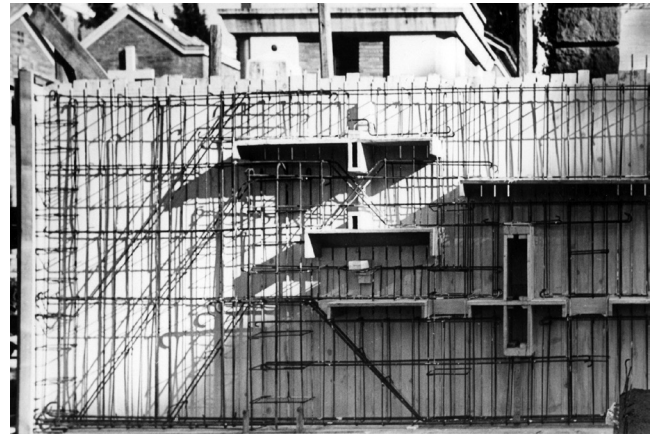
The photograph taken by García de Paredes in June 1956 of the House of the Faun in Pompeii depicts a similar scene: an open space contained between two walls, one closed and the other open, revealing a garden. Even more to the point, the courtyard of Aalto's experimental house in Muuratsalo, with one side transformed into a grating that permits views of the pine forest, has similar dimensions to the Pantheon: 8 x 8 meters. The architects' journey to Finland in Autumn 1957 included a visit to Aalto's work, which reaffirmed the human factor they were seeking for the Pantheon,



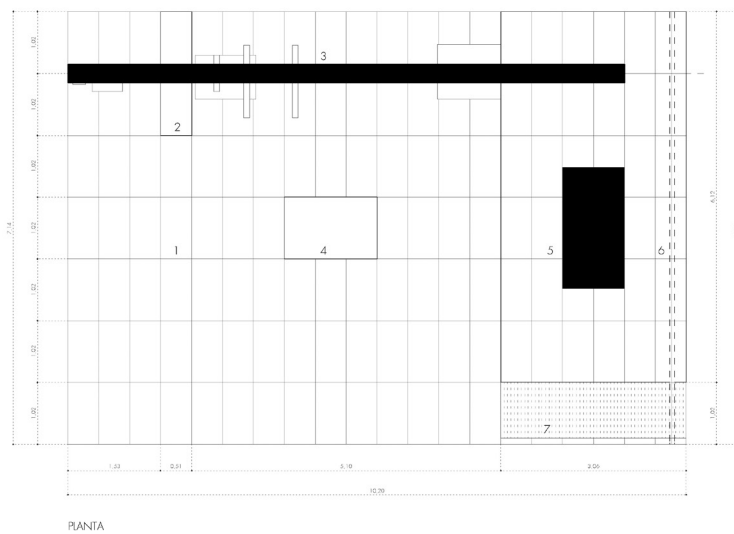
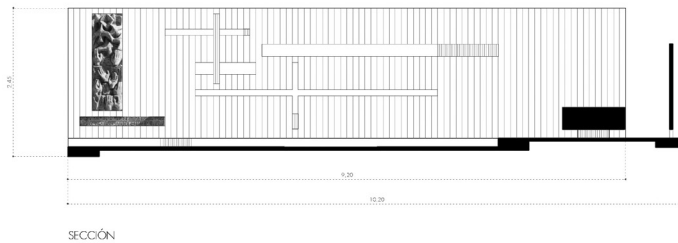
03 Spanish Pantheon in Rome. © Amanzio Farris, 2014.



04 García de Paredes' studio at the Fine Arts Academy, Rome, 1957.
© JMGP archive.



05 Spanish Pantheon in Rome. Construction of concrete wall, 1957.
© J.M. García de Paredes, JMGP archive.



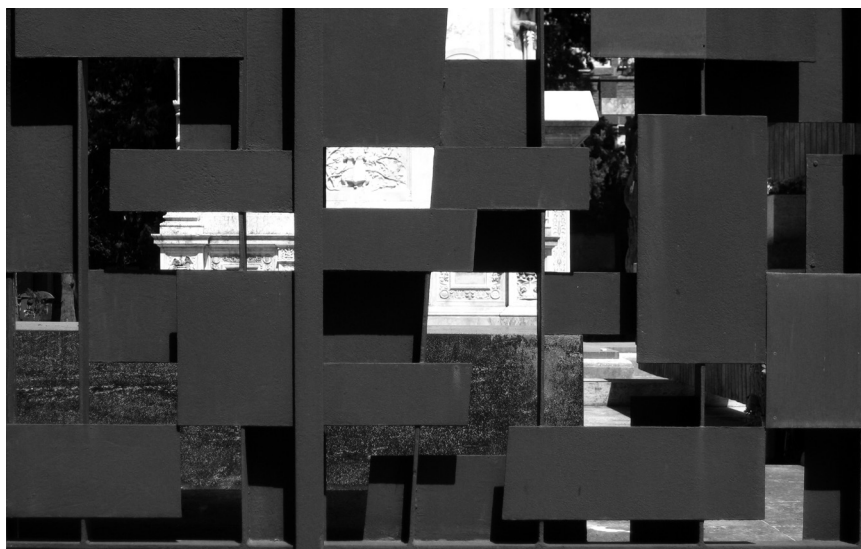
- 1. LOSAS DE TRAVERTINO
- 2. LÁPIDA DE JORGE SANTAYANA
- 3. MURO DE HORMIGÓN ARMADO
- 4. ACCESO A LA CRIPTA
- 5. ALTAR
- 6. VERJA
- 7. ROSALES

0 1 2 3 5m

06 Spanish Pantheon, plan and elevation. © JMGP archive.



07 Spanish Pantheon in Rome. © Amanzio Farris, 2014.



08 Detail of bronze and iron grid. © Amanzio Farris, 2014.

as García de Paredes mentions in his Roman Memorandum,

Each one of Aalto's buildings shows his concern for the human factor in architecture. He is achieving new technical progress which proceeds from psychological investigation. He does not begin from a grand theory like the rationalist masters, but rather a great love and exhaustive analysis of the little problems of everyday life.¹⁴

The famous words of Santayana also come to mind, "Those who do not remember the past are condemned to repeat it."¹⁵ The three Spanish authors were probably not thinking so much about the past as a promising future, anticipated by this work in Rome.

Notes

- 1 Javier Carvajal (1926-2013) was awarded a scholarship in Rome for the period between 1955 and 1957, and García de Paredes between 1956 and 1958. His nomination by the Examination Tribunal as an architect in residence at the Spanish Academy of Fine Arts in Rome was announced on 28 September 1955.
- 2 Ramón Vázquez Molezún (1922-1993) was an architect in residence at the Rome Academy between 1949 and 1952. In 1950 he was awarded the Gran Prix de Roma for the St. James votive lighthouse project in Galicia, and exhibited three pictures in the Spanish Pavilion at the 25th Venice Biennale, entitled "Bologna", "Padova" and "Verona". He formed a close friendship with García de Paredes, two years his younger, while they were studying at the Madrid School of Architecture and lived at the Ximénez de Cisneros College and then the Dominican Residence in the Virgen de Atocha Basilica. After García de Paredes returned to Spain from Rome, they collaborated on several projects and competitions in the company of the architects based in Bretón de los Herreros Street, including the interiors for the Brussels Pavilion in 1958, the Almendrales township between 1958 and 1964, and the competition for the Madrid Opera House in 1964.

- 3 Juan Ramírez de Lucas, "En el Janículo se crea en español", *El Español*, 482, 23 February 1958.
- 4 Enrique Lafuente Ferrari, Forward to the Catalog of the exhibition *Resident Painters and Architects in Rome, 1955-1959*, Circulo de Bellas Artes, Madrid, 17-30 April 1959.
- 5 The plans and photos of Caravajal's model for the Spanish Pavilion at the Venice Biennale are held in the University of Navarre General Archives.
- 6 José María García de Paredes, *Memorandum for the Spanish Pavilion at the Venice Biennale, 1955*.
- 7 *Idem*.
- 8 Study tour of Austria, Germany, Denmark, Sweden, Finland, International Building Exhibition (INTERBAU) in West Berlin, Belgium and France. The purpose of this trip was to study the latest architectural achievements in the field of housing, urbanism, school and religious buildings, and industrial design and applied arts to the needs of modern life. It included, among others, the following cities: Innsbruck and Salzburg in Austria. Munich, Stuttgart, Mannheim, Frankfurt, Mainz, Koblenz, Bonn, Cologne, Hanover, Hamburg and Berlin in Germany. Aarhus, Middelfart, Odense, Roskilde, Copenhagen and Helsingør in Denmark. Helsingborg, Kalmar, Södertälje, Stockholm and Uppsala in Sweden. Helsinki, Hammelina, Pori, Noormatku, Abo (Turku) in Finland. Liege, Brugges and Brussels in Belgium. Rheims, Sedan, Paris, Chartres, Tours, Angoulême, Bordeaux and Marseilles in France.
- 9 José María García de Paredes, *Memorandum of Architect in Residence at the Spanish Academy of Fine Arts in Rome*, March 1958.
- 10 Fernando María Castiella was ambassador to the Vatican from 1951 to 1956 and Minister of Foreign Affairs between 1957 and 1969. He therefore presided the official opening of the Spanish Pantheon in November 1957 as a Minister.
- 11 Jorge Ruiz de Santayana (1863-1952), philosopher, poet and writer, raised and educated in the United States, where he taught at Harvard. He died in Rome, where he wanted to be buried.
- 12 José María García de Paredes, *Memorandum for Spanish Academy in Rome examination*, 27 April 1955.
- 13 Juan Ramírez de Lucas, "Here lies Jorge Ruiz de Santayana", *Diario Arriba*, 10 May 1959.
- 14 José María García de Paredes, *Memorandum of Architect in Residence at the Spanish Academy of Fine Arts in Rome*, March 1958.
- 15 Jorge Ruiz de Santayana, *Reason and common sense*, first of 5 volumes in the series *La vida de la razón*.

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Ángela García de Paredes

(Spain, 1958) Architect (1982), PhD (2015), Superior Technical School of Architecture of Madrid, where she is architectural design professor. Her doctoral thesis title is *The architecture of José M. García de Paredes, the vision of a work*. She is founder of Paredes Pedrosa Arquitectos since 1990. She was awarded with the Spain Architecture Award, Gold Medal for Fine Arts. Previously, she was visiting professor and critic at several universities both in Spain and abroad.

HERITAGE IN DANGER

Tony Garnier – the unloved

BY PHILIPPE DUFIEUX



01 Demolition of Pavilion H at Édouard-Herriot Hospital, Lyon, 2015.
© Anne-Sophie Cléménçon.



02 Architect François Chatillon, the new block at the Édouard-Herriot hospital, Lyon, 2018. © Anne-Sophie Cléménçon.

At a time when Lyon celebrates the one hundred and fifty years of the birth of one of the most famous architects of the beginning of the 20th century, Tony Garnier (1869-1948), the observation of the conservation of the works of the designer of the *Cité industrielle* (1917) is very disturbing. Garnier's heritage remains extremely fragile and the protection measures are insufficient.

Several complexes and buildings have been destroyed and disfigured, for example the *Abattoirs de la Mouche* in Gerland (Lyon, 1909-1914) that were demolished in 1974. The large hall of the market has been preserved and transformed into a performance hall. Although the Édouard-Herriot hospital (1913-1933) has benefited from the protection of the perimeter of its chapel since 1967, its monumental fireplaces were demolished in 2001 for security reasons and, more recently, the Pavilion H has been destroyed in 2015 with indifference for the construction of a new 18,000 m² building, designed according to François Chatillon's (1961-) plans and delivered in 2017.

In 1967, the Gerland Stadium (Lyon, 1913-1926) was included in the additional inventory of historic monuments. It was the first monument of the 20th century in the region of Lyon to benefit from a protective measure that would later prove to be completely illusory when considering how unrecognizable the developments carried out between 1984 and 1996 made it. In 1991, two of the

three villas built by Garnier in the 1910s in Saint-Rambert (Lyon) were protected even if, today, only the former villa of Catherine Garnier (1912-1919) still retains its original physiognomy; the architect's villa was brought into alignment in 1958 and the third house has recently undergone a significant modernization.

The war memorial on Île aux Cygnes (1920-1930) was included in the supplementary inventory of historic monuments in 1982. The municipal cow-shed in Tête-d'Or park (1913) was once threatened with demolition and the same applies to the District of the États-Unis (1921-1934) which was subject of a major upgrading campaign between 1983 and 1995. This last project played a major role in raising awareness among residents and the public of the heritage of Garnier. In 1991, Tony Garnier Urban Museum and the District of the États-Unis was awarded the label of the World Decade for Cultural Development by UNESCO, but thirty years later, the district did not benefit from significant protection unlike the skyscrapers of Villeurbanne. Still in 1991, the École de Tissage in Lyon built by Garnier between 1927 and 1933, benefited from a measure of protection which also was extended to the villa of the director.

How to explain that no works of the architect are classified as Historical Monuments? This question echoes the real uneasiness surrounding Garnier's architecture in Lyon. These are the reasons which motivate today

the launching of a petition in favor of a real consideration of the heritage of the architect. It is now advisable to think in a coherent way, on the scale of the metropolis and in support with the steps taken by the city of Lyon at the time of the inscription of its "historic site" on UNESCO's World Heritage List, to the need to broaden the recognition of the architect's physical and intellectual work which contributes to avoiding the double risk of trivialization and loss of substance. It is also necessary to encourage partners – public or private – in urban development or heritage change operations to really consider the necessary protection of Garnier's works, in particular by launching a general study aimed at strengthening regulatory and legal measures using existing tools (UNESCO classification of Garnier's work, extension of the UNESCO perimeter in Lyon, strengthening of historic monument protections, creation of remarkable heritage sites, etc.).

Philippe Dufieux

Professor at École Nationale Supérieure d'Architecture de Lyon and regional representative Auvergne-Rhône-Alpes of **docomomo** France.

Sign the petition for the protection of buildings constructed by architect Tony Garnier in Lyon at

<http://chnng.it/qPzKNP4GwD>
combo_share_initialcombo_share_initial



03 Édouard-Herriot Hospital, Lyon, 1933, general view of the pavilions, tirage argentique, 18 x 24 cm. © Jules Sylvestre, public library (P0546 S 0587).



04 Tony Garnier, Hôpital de Grange-Blanche, aisle serving the pavilions, the major works of the city of Lyon, studies, projects and works carried out by Tony Garnier, Paris. © Charles Massin, 1919, pl. 11.



05 Tony Garnier, Édouard-Herriot Hospital, Lyon, detail of one of the pavilions. © Photo of the author.