



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

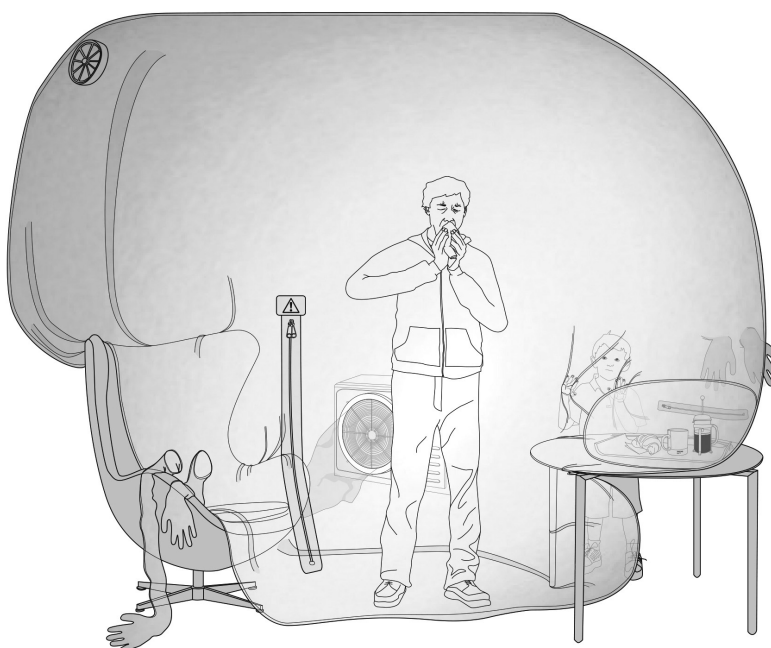
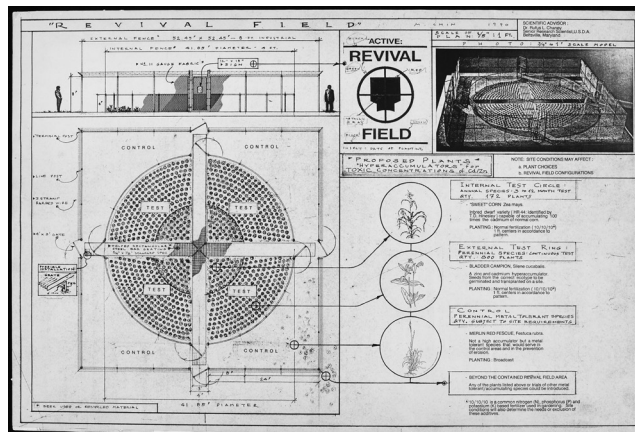
According to some scientists and doctors, our bodies are not biologically suited to cope with the sudden environmental changes they have been subjected to in recent decades.

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

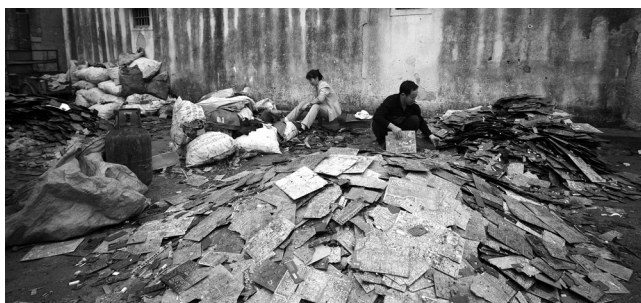
- 05** Fachkliniken Nordfriesland, Riddorf, Germany, 2005, environmental unit, emission-free metal room. © (Unknown photographer) EU Hospital Projects & Fachkliniken Nordfriesland GmbH.



- 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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