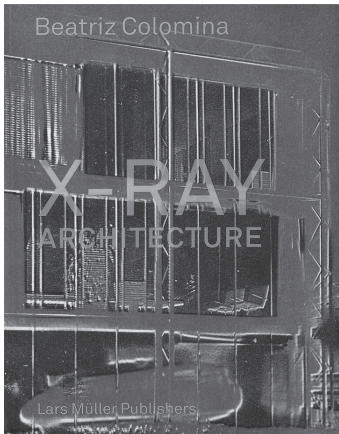**Beatriz Colomina, *X-Ray Architecture*, Zurich, Lars Müller, 199 pp. – 2019**
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How is architecture related to ailments and suffering bodies? Is architecture capable of providing cures or alleviating pain? To what extent can architecture be health-inducing or health harming? Exploring the long-lasting bond between architecture and illness, Beatriz Colomina's latest book, *X-Ray Architecture,* is a seminal study that brings forward a new *intra-canonical* perspective to explore modern architecture. Philosophically thoughtful (rich with Derridian insights), sharp and brilliantly written, the book offers a fresh historiographic study of the past century, and at the same time, a compelling theoretical agenda for the study of architecture in the centuries to come. Bringing some *forgotten and repressed* stories to the fore, as she terms them, Colomina's

study casts new light on modern architecture in addition to the traditional rhetoric of its technical and visual efficiency that tends to dominate architectural discourse. Taking a historical overview from Vitruvius to the modern day, the book posits (chapter 1: *Health and Architecture: From Vitruvius to Sick Building Syndrome)* that architecture has always relied on a specific relationship to medicine and the body; architects have always been *doctors* dissecting and slicing section cuts of the *body* of built structures (to understand the interior) reminiscent to surgeons who investigate the mysterious interiors of bodies to gain knowledge for better cures. The historiographic narrative is far from conventional. The key actor here is not a heroic human actor, an architect, but rather a nonhuman, the tubercle bacillus discovered by Robert Koch in 1882. As it spread, tuberculosis led to concerns with ventilation, light, exercise and emotions. Attempting to respond to these concerns, architecture gradually became a powerful curing machine, a counter-power to the traditional house that produced the debilitating effects of tuberculosis. The new features of modern design aesthetics – roof gardens, pilotis, glass walls, clean air, natural light – became medical devices of that curing machine. While tuberculosis lurked as an ever-present threat, the healthy body and athletic figures became the paradigmatic clients of modern architecture. Far from being a shiny functional or expressive machine, modern architecture is pictured here for

the first time as a cocoon for sheltering fragile and traumatized bodies. Moreover, the heroic figure of the modern architect is replaced by the figure of the fragile and sick designer; the architect becomes a patient. Instead of the giants and glamorous heroes of modernity that we are accustomed to, we meet the tired and sleepless Le Corbusier, the fragile Loos suffering from stomach cancer, the undernourished Kiesler, among others. Their suffering and many ailments further nurtured the functioning of architecture as a health-inducing machine. Drawing us into the specific design of one of the emblematic curing machines of the time, the sanatorium (chapter 2: *Tuberculosis*), Colomina engages in a careful analysis of its specific design. Here in the detailed descriptions of sanatorium's internal design, the politics of care performed by buildings is deployed in full swing. A look at the Alvar and Aino Aalto's Paimio Sanatorium (1929-1933) shows that the lack of ornament is meant to avoid the accumulation of dust, the chair backs are angled to facilitate breathing, the handles are designed to avoid catching the sleeves of the doctors' white coats. The architect is again a patient here (Alto suffered from tuberculosis), a lying patient. From that position, lying on terrace chairs, new aesthetics of horizontality emerged, as design provided connections with the forest, the lakes, and applied the principles of light, air and sun. Colomina goes so far as to argue that the sanatorium modernized architecture as the terraces, with

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their horizontal views of the setting sun, added to the machinery of the building that cures.

To deal with illnesses, this particular building type became a "laboratory for incubating new attitudes toward form, spatial organization, interior design furniture, fittings, lighting, plumbing, air, equipment, surfaces, colours, materials and construction methods" (p. 78). This was related to a new social paradigm: starting in the 1880s, the aristocracy and the upper classes began to spend summers in sanatoriums and curative spas to deal with nervous disorders and other illnesses of modernity. The biography of Walter Gropius (MacCarthy, 2019), for instance, abounds with stories of his life where the sanatorium is the social stage, but also as a curing and psychological machine of his numerous sufferings (it is, after all, where he meets Alma Mahler and some of his major clients).

This reaffirms Colomina's idea that the body of the architect becomes indissociable from the design of buildings. Moreover, for her, this building type is more than a social stage. Every feature of its design has therapeutic effects and evokes a philosophy of life that relies on the "therapy of the horizontal" (p. 89). As a typology, the sanatorium became "a factory for the manufacturing of healthy bodies" (p. 91). It also spread to other typologies and became a kind of model for a way of life.

In addition to the emblematic figure of the fragile tuberculosis patient seeking a cure, modern architecture was organised around another emblematic figure: "the athletic seeking prevention from the disease of modernity" (p. 108) – most of them related to neurotic traumas. Both the horizontality of the experience of the tuberculosis convalescent lying on the chaise or the psychoanalytic patient on the couch–as paradigmatic clients and occupants of modern architecture–contributed to the medicinal effects of the sanatorium architecture. Here, Colomina performs another interesting analytical move, which will have implications for the way we write about architecture: she places the bodily experience of the designer at the centre of creativity (rather than the mind of the creator); the suffering body and its emotions, its nerves, become a locus of architectural imagination. Moving away from a rationalist perspective that situates imagination at the centre of creative processes, Colomina invites a phenomenological perspective into architectural historiography, one that situates the body and the senses into the centre of architectural making. It is this shift in analytic focus that allows buildings to transform into a form of therapy. Laying on the chaise, we can, from this focus, see that architecture was compelled to act as an instrument against medical and psychological trauma, and that good design was given a new social mission: to offer the good life and produce a particular way of life.

Yet, according to Colomina, a specific type of technology, which became associated with tuberculosis, had the greatest impact on architecture in the twentieth century: the X-ray (chapter 3: *X-ray Intimacy*). Following Rontgen's invention, and his first scientific paper announcing the discovery of the X-ray in 1895, various techniques for photographing the X-ray effects were developed. They captivated the popular imagination. Long before the so-called *avant-garde*, X-ray images had transformed the visual field long introducing a new *transparency*, turning modern buildings into medical apparatuses. Colomina shows how the X-ray created a new technological space defined by a screen rather than walls – a glowing screen with a shadow image. This translated into an architecture that became more about exposure than shelter or a container; one that absorbed the logic of the screen and the ghostly image of the inside. If the sanatorium aesthetics turns the building into a machine fuelled by the experiences of sick bodies, the X-ray technology enhances its machinic nature. Just like X-ray technology, glass architecture brought the mystery of the interior to the surface; the body was turned inside out. Representing exposure, glass was called on to simulate transparency, which has since become a symptom of a deep-seated philosophy of design. Transparent modern buildings, reminiscent of an X-ray, were understood as a piece of medical equipment making the building flesh a faint outline. The ability to see through materials challenged established social protocols of privacy and, ultimately, the architectural concept of shelter. As she writes: "everyone became a permanent patient in need of a new kind of medical domesticity" (p. 147). Yet, as the very act of looking became exposed, and the modern users felt this exposure, the *eye*, the act of looking, became destabilised, resulting in blurred vision (chapter 4: *Blurred Visions*). The clear and distinct became confused and ambiguous, the boundaries between inside and

outside became blurred. As a result, the mysterious inner reality hung suspended in the ghostly medium of a translucent mass. Exposure did not bring clarity, but this aesthetics that aimed to reveal the inner through translucent layers, instead endlessly folded and overlapped the layers, intensifying the mystery of the inner. Architecture culminated in a dense cloud of ghostly shapes that became more blurry, nebulous, vaporous. Colomina draws our attention to the gradual dematerialization of architecture as being closely intertwined with it becoming more mediatized. While she famously argued in *Privacy and Publicity* that the old media made modern architecture modern (Colomina, 1994), here she extends the argument to "new media [that] makes it disappear" (p. 170) as it penetrates all spheres of life. The X-ray effect, Colomina denotes, has migrated to *all* dimensions of contemporary life and has turned our world into one of extreme exposure. With technologies like the CAT scan (invented in 1972), the visible human project, or the M2A camera infiltrating the world of architecture, we witness a new mode of thinking about the interior as continuous folded surfaces where structure and skin cannot be disentangled. The technologies at the turn of the twenty-first century turn the building into a flowing hyper-envelope, and thus the role of architecture is challenged again. Traveling through time, we witness how different instruments of medical diagnosis played a role in the curing machinic architecture of modernity.

As the blur becomes a new kind of space, a new kind of interior, privacy is no longer established by a line, a threshold, but is blurred in a *hyperpublic* space (chapter 5: *Hyperpublics*). Colomina's book makes us aware of the multiple descendants of the X-ray machine we share our world with; dispersed in contemporary cities, regulating the boundaries of public/private, they define the limits of architecture and suggest new aesthetics. However, the book leaves us wondering: If the obsession with illness can produce new types of architecture and aesthetics, what are the new architectures of the well-spread neurological diseases of the twenty-first century (the *tuberculosis* of our time)? And if architecture finds itself increasingly unable to generate cures (rather the opposite – as the *sick buildings syndrome* shows that buildings can become a source of disease (Murphy, 2006), what kinds of new theories of architecture will follow? What are the new modalities of the agency of architecture in a world of spreading viruses as the coronavirus we experience just now? What are the new technologies of containment and visibility? How do they promote the dissolutions of the boundaries of architecture today? While the book offers a fresh and rather unconventional historical account of modern architecture, it also traces a compelling programme of research for theorists of architecture, namely that architecture absorbs technological transformations and reflects on them. Just like the new medical technologies that have emerged in the early years of the last century have modified our understanding of architecture (shifting the boundaries of public and private), new technologies have the potential to become *a pattern giver* (Evans, 1982) to architecture. Shifting the focus from the mind to the body, Colomina invites theorists and historians of architecture to consider how the body reacts to the harmful effects of the environment and social life in different historical moments. This is also a plea to scrutinize the ways the suffering body prompts the development of specific technologies of cure (and inspire a new politics of caregiving), which all together give shape to a new architectural sensitivity, to new forms and new spatial answers –  just as the technology of handwritten letters in psychoanalysis (Derrida, 1995) and off-set lithography (Colomina, Buckley, 2010) have generated different discourses.

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