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Inexact by Nature

Editors' Note

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The unawareness of the limited natural resources and an unrestricted faith in technology fostered the idea of a universal architecture, which dominated the first half of the twentieth century. The position in which we find ourselves today is not new, however, and can be illustrated by a century-old change of attitude in Le Corbusier's work. At the end of the 1920s, Le Corbusier proposed "one single house for all countries, all climates: a house with *exact respiration*."[1] By "exact respiration," he meant a hermetic interior at eighteen degrees Celsius throughout the year, involving a double wall or double-glazed façade—"mur neutralisant"—mechanical air conditioning being blown between the inner and outer panes. Le Corbusier first envisioned this system for the League of the Nations (1927) and the Centrosoyus Palace (1928–34). The failure of proper temperature control in built works such as the Centrosoyus and the Cité de Refuge (1928–33) and the works for Algiers, Barcelona and Rio de Janeiro, with their practical exigencies of thermal requirements and aesthetic potentials, led to an interest in elementary techniques of environmental control. The most obvious example is perhaps the "sunbreaker" (*brise-soleil*), an architectural element of climate control that started to cover the flat geometry of his architecture and gradually acquired formal autonomy, as illustrated in the Mill Owners' Association building in Ahmedabad (1951–54).

1 "A cette heure d'interpénétration générale, de techniques scientifiques internationales, je propose: une seule maison pour tous pays, tous climats : la maison à *respiration exacte*." Le Corbusier, *Précisions sur un état présent de l'architecture et de l'urbanisme* (Paris: G. Crès, 1930), 64.

The contemporary context of global environmental change and biodiversity loss reframes this debate, challenging architecture in two interrelated aspects: the reduction of carbon emissions at the level of both embodied and operational carbon. In addressing the issue of embodied carbon, existing buildings must be understood as reservoirs of energy resources, allowing possibilities for adaptation, reuse, repair, or recycling (as instigated by the EU's Circular Economy Action Plan). In addition, the specific context should consider a logic of circular economy in the selection of materials and adapted building techniques, in which the life cycle of resources ideally transforms into an endless loop.

The issue of operational carbon, on the other hand, or the energy performance of buildings, directly associated with the idea of comfort, can and should be addressed through design, the architect's primary and favoured tool. The desired resilience and harmless energy behaviour of what is to be built require an understanding of the specificities of each context, that is, an understanding of the ability of materials, buildings, and urban arrangements as a whole to store or dissipate energy as needed. This implies research into typological solutions, suitable geometries for a specific geography and climate, the efficiency and versatility of section and plan of these geometries and the implications in natural heating and ventilation, the properties and local availability of materials, and structural and infrastructural strategies.

This is, in essence, a global problem requiring different local solutions and is particularly challenging in intermediate temperate climates such as the Mediterranean, as despite the absence of extreme temperatures — which facilitates the absence of mechanical solutions — these may vary considerably both between seasons and during the day. The Mediterranean climate is indeed characterized by hot, dry summers and cool, wet winters, and it is worth remembering that this type of climate is not restricted to the area of the Mediterranean basin. It is characteristic of a series of geographies between 30 and 45 degrees north and south, such as in western South and North America, Chile and California, the far south of the African continent and in Oceania. Its seasonal and daily thermal variability escapes unidirectional prescriptions which are possible in extreme climates and requires either capturing heat (cold climates) or dissipating it (hot climates). Perhaps for this reason, architectural research on the thermal performance of buildings has avoided these intermediate geographies between the easier-to-define north and south, with the overwhelming majority of studies conducted in thermally extreme climates.

Nevertheless, Mediterranean climate geographies are extremely rich in architectural heritage. Different economic, social, cultural, material, constructive, formal, and typological realities coexist in these geographies, providing us with a wide reservoir of traditional knowledge and architectural solutions for an alternative to the universal architecture of "exact respiration."

It is a richness which is directly related to the benign nature of the climate, having fostered the development of urban and architectural solutions in which the boundaries between interior and exterior have been diluted, expanded and gained depth, with resonances in the ways of living and using space. Taking advantage of different thermal typologies and their archetypes, often with hybrid configurations to address the dynamics of atmospheric alternation, such as porches, pergolas and arcades, courtyards, greenhouses and caves, spatial mechanisms were developed and became deeply rooted in immemorial cultural habits.

While the shift towards an architecture of "inexact respiration" means to abandon the standards of comfort provided by mechanical control and assume a more tolerant culture towards the relationship between architecture and the environment, where architecture itself provides, or contributes significantly to, the solution, this shift does not mean a return to the vernacular. It means the development of a new (or renewed) architecture which is capable of expressing the zeitgeist and the central problems of sustainability and the energy crisis that characterize it. If architecture is cyclically mobilized towards its legitimation as a language — as witnessed in the Enlightenment, in the modern movement and in postmodernism — how is this urge towards a sustainable architecture defining new architectural languages? How is architectural practice exploring the legacy of the past in defining critical architectural solutions? What typological and material experiences point to an in-depth revision of carbon-based architectural and building solutions? What is the relationship of these solutions with use and ways of living? Given that the most sustainable position is to maintain existing buildings, what can we learn from the practice of reuse and adaptation?

This debate can no longer be postponed or outsourced to other geographies, because these problems of energy and ecology are, first and foremost, a matter of design. By placing them at the heart of the discipline, we also reaffirm the role of the architect — not as a bystander, but as an active agent, capable of intervening with knowledge, discernment, and responsibility in what is built. It is urgent for us, as architects, to become fully aware of the consequences of our actions on built landscapes, so that we may begin to imagine ways of turning entropy into syntropy, and externalities into internalities — as nature does.

This issue of *Joelho* is a contribution to this necessary shift. It brings together seven contributions from different geographies and scales — six of them rooted in or referring to Mediterranean climates — which question contemporary environmental paradigms in architecture, revisit past practices, and propose alternatives for the future.

The issue opens with a critical overview of the present situation in which Viriato Soromenho-Marques presents a philosophical reading of the Anthropocene as a dystopia born from the full realisation of modern

utopia: the alliance between technoscience, market economy, and state sovereignty. For this critical moment, he calls for a new *De Re Aedificatoria*, one capable of reconciling thought and construction, nature and culture.

Eduardo Prieto's contribution offers a critical genealogy of architecture's environmental paradigms — hygienist, technocratic, bioclimatic, thermodynamic, and sustainable — revealing their continuities and contradictions over the last century and advocating for a hybrid and conscious approach. A return to the discipline's foundations, where climate is not an external factor, but constitutive of the architectural project itself.

An ecological reinterpretation of the concept of typology is proposed by Javier García-Germán, in which body, climate, and territory are combined through performative, sensitive, and architectural forms deeply embedded in everyday life. García-Germán examines how certain climatic types — historical and contemporary — create habitable and pleasurable microclimates, grounded in social practices and specific material strategies.

Beyond typology, architectural elements provide further arguments for the elaboration of renewed design strategies. This is explored in the two following articles. Fernando Diniz Moreira revisits the evolution of breathing façades in modern Brazilian architecture, particularly in the work of the *Escola Carioca*, as devices attuned to climate, culture and use. Moreira explores how architects employed elements such as *brise-soleils*, *cobogós* walls and verandas not only as thermal regulation strategies but also as symbolic and spatial features that convey institutional expression and cultural continuity. That an evaluation of architectural elements implies a look towards tradition becomes clear in the essay by Catarina Ribeiro, Nuno M. M. Ramos, Inês Flores-Colen, and Nuno Valentim. Here, the authors discuss the genealogical relations between the Mediterranean balcony and contemporary collective housing, understood as an archetype of well-being. Their article explores how this liminal space has embodied shifting paradigms of comfort, health, and energy efficiency — and how it is now being revalued as a space of climatic mediation, cultural expression, and everyday experience.

Shifting towards speculative satire, Mark Jarzombek and Vikramaditya Prakash reconstruct Banham's famous *Environment-Bubble* in Capri. In a fictional documentary, the text humorously exposes the technical, social, and ideological limits of technological utopias and highlights the radical strangeness of architecture when disconnected from its ecological context.

Lastly, Jaume Mayol presents the pedagogical experience of the TED'A atelier in Mendrisio, offering a deep reflection on the role of architecture in the context of climate emergency. The studio explores the relationship between form and climate, tradition and innovation, matter and ecosystem, across three distinct Mallorcan landscapes (a terraced landscape, a flat landscape, and salt flats next to the sea), with particular attention

to water, vegetation, material reuse, and local craftsmanship. It proposes learning from the past to face the present and design a less impactful future.

Following these seven contributions, a new and final section of this issue of *Joelho* delves into the argument that issues of energy and ecology are, first and foremost, a matter of design. Edited by Guilherme Machado Vaz, this section brings together four projects by Bosch+Capdeferro, HArquitectes, IBAVI, and baubüro in situ, which tackle this main theme, whether through the reinterpretation of vernacular typologies and traditional construction systems, whether through the creative exploration of the possibilities of reusing materials and elements.