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Industry, Innovation and Infrastructure

Phillip B. Roös

Regenerative-Adaptive Design for Sustainable Development

A Pattern Language Approach

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The Made Order and the Given Order, Unfolding

You are about to read a radical and visionary work of immanent practicality. The author gets straight to the point: The critical issues we face as a global society require "a new manner of thinking if humanity wants to survive."

Sometimes it seems that when it comes to academic writing, the smaller the idea, the more one gets support for publishing in ever narrower journals and conferences. The successful scholar becomes adept at navigating the strict limitations of length, scope and methods insisted upon by peer reviewers who have built their own careers on tweaking small increments of an idea inside an existing paradigm. This is decidedly not that sort of book! It is, instead, a book of big ideas.

In a theoretical landscape of increasing fragmentation, a political and social realm of increasing polarisation and an economic terrain of widening income disparity, Phillip Roös takes a reconstructive integrating view. Nothing in academia or in professional practice rewards grand integrated thinking. If we live in an era when many promote the end of truth and facts, the end result is a depressing nihilism where nothing means anything and the only truth allowed by a pathological postmodernism is that there can be no metanarratives. Of course, that in itself *is* a metanarrative, as philosopher Ken Wilber has pointed out. Wholeness does not exist to the postmodern deconstruction-obsessed consciousness. Yet, wholeness *is* what is required, and Roös begins with the idea of *wholeness*, an unbroken vision of the potential for a synthesis of nature and culture in which "humans and nature work together in a developmental process that improves the value of the whole." Wholeness is both a quality one can feel and a structure of systems and relationships that can be mapped and ordered.

The problems Roös wants to address – ecological degradation and collapse, the threats to waterfronts, loss of indigenous knowledge, climate change, how design creates the feeling of life, the regeneration of industrial wastelands, the nature deficiency of cities – are not solved by the elimination of big ideas, knowledge systems or overarching narratives. Instead they require new stories of the Earth and better explanations for how individual design patterns fit together to build complex multiscalar settlements. To enter this realm takes a particular kind of courage combined with the humility of an integral eye and mind.

Behind the deep solutions offered in this book is the author's willingness to authentically see the world, to trust his own experience and those of others *as real* in the face of so many apologists for the failures of modern and postmodern architecture and urban design. Architects love to critique the work of other architects but also to defend the value of their profession. As a discipline, we live in our heads and tend to distance ourselves from the truths the whole human self, body included, has to teach us. Few of us navigate a contemporary city in Australia or in America and exclaim about how life-affirming the experience is. Instead, as Roös puts it, the built environment is "almost un-imaginably bad and unacceptable." The ideals and principles taught in design schools simply don't produce the quality products as claimed. Even in terms of sustainable development, we are "still grasping at straws, striving to achieve sustainable goals," he says.

The theoretical part of this book defines a series of "fundamental" patterns for a "regenerative-adaptive pattern language." These fundamental patterns are not spatial solutions but "idea patterns"

that link together in an intellectual network an ecology of ideas. To unpack the plethora of new terms requires reading the book. I encourage the reader to dive deep and immerse yourself in this journey, as this is not another typical work of speculative design theory, most of which can hardly be called theories at all. A real design theory has to explain what good form is and how it comes into being; it needs its injunctions and its methods. It is the application of these tools in practice from which the paradigm emerges and not the other way around. Following the designation of the text, in the discussion that follows, these fundamental patterns are shown in small caps, such as The Whole.

What thinking can support the generation of the wholeness described in the pattern, The Whole? In addition to getting out of our heads (at least partly) and leaving behind cherished but dysfunctional precepts, the unworkability of contemporary paradigms (including sustainability), we also need the mind, a higher mind that is. To access the abstract nature of climate change as an invisible, complex-systems phenomenon that is progressive and statistically evolving requires an integral cognition. It requires trans-rational and trans-critical thought. Ecological design itself is a post-postmodern cognitive task, what Harvard's Robert Kegan calls 5th order consciousness, the "self-transforming mind" of the "inter-individual self." Taking such an integral prospect, an altitude if we may, it becomes apparent that the multiple perspectives of experiences, technology, ecology and cultures each have something powerful to offer a sustainable future, as articulated in an Integral Sustainable Worldview.

Any informed person knows that climate change is one of the grand challenges of our century. From the integral perspective, culture depends on human minds, which depend on life itself, which depends on base matter. Culture is built on nature, and therefore nature is in fact more fundamental, while culture includes nature in its depth. In this holarchic sense, nature is a part of culture. It is like a building where nature is the foundation. No building can stand when its foundation collapses. Any workable responses to curb or adapt to climate change call us to pay deep attention to both the success of the human species, but also to the diversity of species and ecosystems that support life on the planet. Roös therefore calls for Climate Change Co-Adaptation.

The example study area is a coastal town in Southern Australia. Embedded somewhere deep in the archetypal psyche is an innate Affinity to Water that humans seem to have. Perversely, our desire to settle near water, to look at it from our homes, to access it in our cars (and to use it as our sewer), ends up degrading the real degree of life in the very coastal places we seek out. It is a tension found from the California coast to the Aegean Islands to the shores of Victoria. In Christopher Alexander's thinking, a good pattern is the order of space that resolves the tensions inherent in a particular kind of recurring design situation. Tensions between human biophilic attraction to water and coastal ecological conservation, between a riparian diversity and the relative monoculture of human settlement, form the context of this critical pattern.

One of the characteristics of any integral theory is its embrace of the empirical realities revealed by developmental studies of individuals, cultures, socio-economic systems, etc. Wilber coined the phrase "transcend and include" to acknowledge that each new stage of human developmental awareness has the capacity to both include the workable aspects of a previous stage (its dignities) and to simultaneously transcend what is unworkable (its disasters). Modern thinkers, especially in the design fields, tend to ignore knowledge from traditional societies as primitive and undeveloped, while postmodernists tend to romanticise traditional people as noble Edenic non-modern ecologists. This book takes a more nuanced approach to Advanced Indigenous Knowledge as a way to access, for design purposes, a deep knowledge of the land and how people have adapted to live with the rhythms of the days and seasons. In true integral fashion, the author practices taking the perspective of the land's Indigenous custodians for what it reveals about the place, knowledge that from other viewpoints may be occluded.

I have argued in other essays and books that the human experience of nature is as important as designing for how nature works. Giving people rich human experiences of nature and natural forces presents the opportunity to develop relationships with the natural world, and meaningful relationships beget care. Connecting people to nature is obviously a critical aspect of any design-with-nature approach. "Biophilic design" is the term of the day, although much of the current literature on the

topic fails to distinguish "philia" as an interior human experience from the physiological, cognitive and health impacts and correlations of encounters with "bio." In integral terms, such writers collapse the subjective into the objective. In fact, there is a dearth of concrete biophilic design patterns with useful spatial guidance for designers to create such deep and affiliative experiences of nature. Thus, the LOVE FOR NATURE pattern and its consequent "nature language" – connecting patterns of space with patterns of ecopsychological experience – is well-timed.

A regenerative design approach will look to nature for its inspiration and model. Inevitably, one arrives at the question of how human systems can be ordered in ways analogous to and integrated with the order of nature's systems. The structure, processes and distribution of ecosystems have evolved over four billion years and constitute what works in the long term on Spaceship Earth. NATURE'S DESIGN helps us locate development in places with the resources and absorptive capacity for human life and also in places where sensitive and eco-productive systems are not harmed.

While nature can be a model for human design, biomimicry is far from enough to sustain regenerative design. John Lyle spoke of "human ecosystems" in which human activity and natural process are always happening co-spatially. We are short on language that transcends the dualistic terms of nature/culture, human/natural and design/nature. REGENERATIVE ECOSYSTEMS is such a transcending pattern that recognises all living systems as a manifestation of their underlying processes and flows of energy, information, materials and organisms. Such new order, arising from the integration of all the species, including humans and their processes, will give rise to authentic and novel form languages that are sophisticated enough to handle their underlying regenerative patterns.

If you ask a restoration ecologist how to go about recreating the pre-settlement diversity of a site, for example a degraded stream corridor, she will tell you that the sequence in which plants, animals, resources and landscape structures, such as bank grading or dechannelising, are introduced is critical to how the ecosystem develops and even what it ultimately becomes. The unfolding of the wholeness at a later stage has to be embedded in the patterns of process and structure at each earlier stage. Architects and urban planners mostly have no consciousness of this principle. Yet how can we expect a rich, diverse and healthy urban human ecosystem without the TRANSFORMATIONS OF WHOLENESS found even in a simple seed? This is fertile intellectual ground for the designer and connects the design patterns to design processes and methods. Roös here is recognising that wholeness is an unfolding incremental process, a necessary and, I will note here, difficult agenda.

Regeneration suggests the healing of places beyond the homeostasis implied by sustainability. It has a vector to return settled landscapes to the richness, diversity and complexity – the aliveness – that was present in earlier times when humans had little or no impact on ecosystem health. Yet, there is no singular end climax state in nature. Thus, the design patterns that catalyse regeneration also have to adapt to changes in the dynamic forces of nature and culture. Species evolve, weather systems change and new technologies are invented. From the integral perspective, these changes might be lateral-horizontal, such as changes of a relatively temporary "state" in a system, for instance the rhythm of seasons or the normal cycles of the economy. Changes can also be vertical-developmental in individuals, cultures and ecologies, as they move from one more or less stable "stage" to another, typically increasing in complexity as they do. The NOTION OF REGENERATIVE-ADAPTIVE PATTERNS represents a conceptual leap forward from all the major urban design and planning approaches, none of which are equipped to deal with adaptation to significant change.

As a real theory needs testing, the book also provides a detailed application of its concepts, tools and methods. The EVOLUTIONARY ADAPTATION pattern more directly addresses ideas such as ecological and settlement succession or development in complexity as the collective actions of residents over time towards continuous improvement and self-transcendence.

Humans are now "the architects of the environment" in this Anthropocene epoch, as biologist E. O. Wilson put it. The book's final chapter questions whether or not humans can achieve a symbiosis with Gaia. If so, will our responsive actions be the result of GAIA'S REVENGE, that is, rebalancing itself to adjust for the pesky species causing the inflammation? In that event, perhaps the pain of

enduring the consequences of climate change and the social, health and psychological impacts of our degenerative forms of development will become greater than the price of organising to force-evolve a regenerative-adaptive culture in order to survive. Alternatively, Roös invites us to a celebration of Gaia and the planetary rules of design required of all living systems. Will we choose to endure the revenge and survive in a less diverse and less hospitable future or celebrate the good news of our aligning ourselves with THE WHOLE for long-term thriving?

What a great question! What a great time to be alive and engaged in the production of the built environment! It is perhaps, given the overwhelming influence that buildings and towns have on climate change, the most interesting generation for design in the short history of our species. It is certainly the most consequential. As Wendell Berry wrote in his poem *Healing*, "Seeing the work that is to be done, who can help wanting to be the one to do it?" A regenerative-adaptive pattern language offers designers and planners the mind tools for the work of making a new order that "seeks the given order and finds its place in it." Such a work cannot be done alone; it is a difficult work – without rest – that requires a learning community of practice. It is, however, the work that is to be done.

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