The Form Strikes Back


Review by Stefano Serafini

Acknowledgements about the relevance of form in physics, chemistry, biology, ecology and other domains have been steadily gaining momentum since the ’90s. In fact, the focus on underlying processes—like biochemical interactions or selection pressure in biology, for example—have overshadowed the scientific study of morphology in several fields during the last 150 years. However, several scholars are continuing to collect evidence about form’s role in triggering and governing dramatic chains of physicochemical effects. Epigenetics and systems biology applied to cancer research are among the most striking examples of such a shift of paradigm.

The idea (inspired by Galilei and previously by Democritus) that forms are incidental phenomena, irrelevant to scientific objectivity, has been overcome. Relations, intentionality, networks and systems are on stage—and they over and over show off as visible and measurable forms.

Galileo Galilei fought the hylomorphism of the Aristotelians in the 16th century, and put the basis for a science rooted in physical measurement of objects. Galilean science focused on mathematical measures of space, time and impulse (like velocity, acceleration, mass, inertia, magnitude, weight, force). Newtonian physics contributed to transform the quantitative abstraction of time and space in metaphysical boundaries of the World, and Immanuel Kant transferred such boundaries into gnoseology. The limits of such an approach became evident already with the impossibility of determining the dynamics of three interacting bodies in movement, a problem that Henry Poincaré faced at the end of the 19th century, preparing the forthcoming science of chaos.

Physics, chemistry and biology attempted to conform themselves to the challenges of coherent complex systems by the means of a superior level of abstraction, i.e. statistics. Robert Brown didn’t care about the momentum of each molecule of the gas he wanted to study. He rather considered each molecule as an abstract point into a general flow whose behavior follows a coherent pattern. Hence Mendelism got rid of the biological mythology that Charles Darwin had carried on from the English breeders (the idea, for example, that the whole genetic information passes entirely from generation to generation), and thanks to the synthetic work by Julian Huxley, Evolution opened its doors to statistics.

Science of chaos and laws of form belong to the third revolutionary shift towards a better understanding of the complexity of real phenomena. The fundamental works of Authors like René

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Thom and Antonio Lima-de-Faria have contributed new ways of looking at form in mathematics, physics, and biology.\(^6\)

Within urban studies, Nikos Salingaros and Michael Mehaffy seem to belong to such an interdisciplinary movement; and it is not by chance that they often refer to the sciences of life in their new book *Design for a Living Planet*. The Authors introduce the reader to understanding how forms are key to change the word by means of design, and come to state that “the core conclusion of the findings reported in this book is revolutionary: sustainability depends upon the geometry of design” (p. 12).

The readers of Christopher Alexander are familiar with several concepts presented in the book,\(^7\) and so are those who have been following the previous works of the Authors.\(^8\) Salingaros especially—a mathematician with a background in nuclear physics—is since long stressing how the external features of objects and the forms of space influence directly the general structure that objects and space share with their context and their users.

Vittorio Ingegnoli has marked a lifelong work devoted to Bionomics with his last book.\(^9\) Likewise Salingaros and Mehaffy acknowledge that the design issues at stake in their work encompass the separateness of disciplines and refers to the wholeness of human activity and the planet’s ecology. Design is not about aesthetics—it is about real effects on the real world and on our lives. A special attention is thus brought to the role that this approach must have on economics, and this seems to be one of the most noteworthy aspects of the book.

One cannot think of changing design without addressing the economic basis from which design stems. This is possibly the first self-critical step designers should make in order to innovate. Several works by Salingaros have already enlightened the role of industrialism against the dramatic quality drop of urban and architecture design during modernity.\(^10\) *Design for a Living Planet* goes further. It points out that design goes beyond the creation of objects. Nowadays design rather deals with services, society, ecology and economics. Economies of scale, of standardization, of place, and of differentiation are thus among the topics of this book.

From such a perspective the following observation sounds very interesting: redundancy is a fundamental quality of living systems, and it makes them especially resilient. As we know, redundancy has been severely banned by contemporary “efficientist” design. Loos considered “decoration” to be a “crime”. Yet, the consequent sanitized design of the 20th century has resulted to be a failure when built structures had to face disruptive events. Urban examples are given, like the effects of the Hurricane Katrina, and the nuclear disaster of Fukushima. In the words of Salingaros and Mehaffy, redundancy is the natural output of a new design of abundance, that not by chance seems such at odds with the economics of scarcity in which we live. Rethinking design thus involves a radical critique about the frames of our very culture and society. Such a rethinking affects aesthetics as long as aesthetics is an effect of more fundamental decisions.


\(^10\) Especially Salingaros, N. A. *A theory of architecture*, op. cit.
The other parts of the book deal with the history of Modern School, the fake fashion of “green”
design, and relevant topics like agility in design, biophilia, evidence-based design, and networks.
A full chapter is devoted to the work of Christopher Alexander, presented as the author of a new
design “technology” in the sense of disruptive, conceptual tools offered to a new generation of
architects and urban planners.

The book is short and light, aimed at inspiring the readers and at making them aware of new
possibilities in the practice of design. These “new possibilities” have nothing to do with fashion
and market success. They rather deal with a radical choice in order to give meaning to one’s own
work, and make our built world more keen to life than it is today.