

Geological Form: Towards a Vital Materialism in Architecture

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The aim here is to rattle the adamantine chain that has bound materiality to inert substance and that has placed the organic across a chasm from the inorganic. The aim is to articulate the elusive idea of a materiality that is itself heterogeneous, itself a differential of intensities, itself a life. In this strange, vital materialism, there is no point of pure stillness, no indivisible atom that is not itself aquiver with virtual force.

—Jane Bennett

For the past two decades, the dominant working metaphor in advanced architecture has been biological: a desire to make architecture more lifelike—that is to say, more fluid, adaptable, and responsive to change. This present-day organic metaphor has developed in two distinct but related directions: First, working from D'Arcy Wentworth Thompson's description of natural form as a "diagram of forces," advanced computer technology has been used to simulate the forces that shape biological form. These contemporary strategies of animate form go beyond the bio-morphism of the 1950s and 1960s by suggesting that the architect does not so much imitate the forms of nature as model the process of form generation itself. Working with contemporary digital technology, for example, it is possible to grow or evolve novel configurations in response to specific forces and constraints. While this has produced compelling formal results, there are conceptual and procedural limits. The design techniques used to generate these new buildings may be dynamic, but the buildings themselves are necessarily static. The forms generated may resemble nature, but they retain little of the performative or adaptive complexity of life. Old metaphors of the building as body persist and the potential of metabolic exchange or co-evolution with a shifting context is limited.

To me, there is a category mistake here: architecture is not so much a living body as it is the stage, or frame, for program and event. By focusing on the building as a finite object, the potential to imagine the building as a catalytic platform for program and event is missed. These design strategies take a partial and selective view of nature. Nature encompasses the underlying geological strata (from soil chemistry to topography) as much as it includes the transitory life that a landscape supports. Resistance and change are both at work in nature: the hardness of the rock and the fluid adaptability of living things. Architecture, I would argue, is better understood as the resistant—and enabling—framework against which, and upon which, life unfolds.

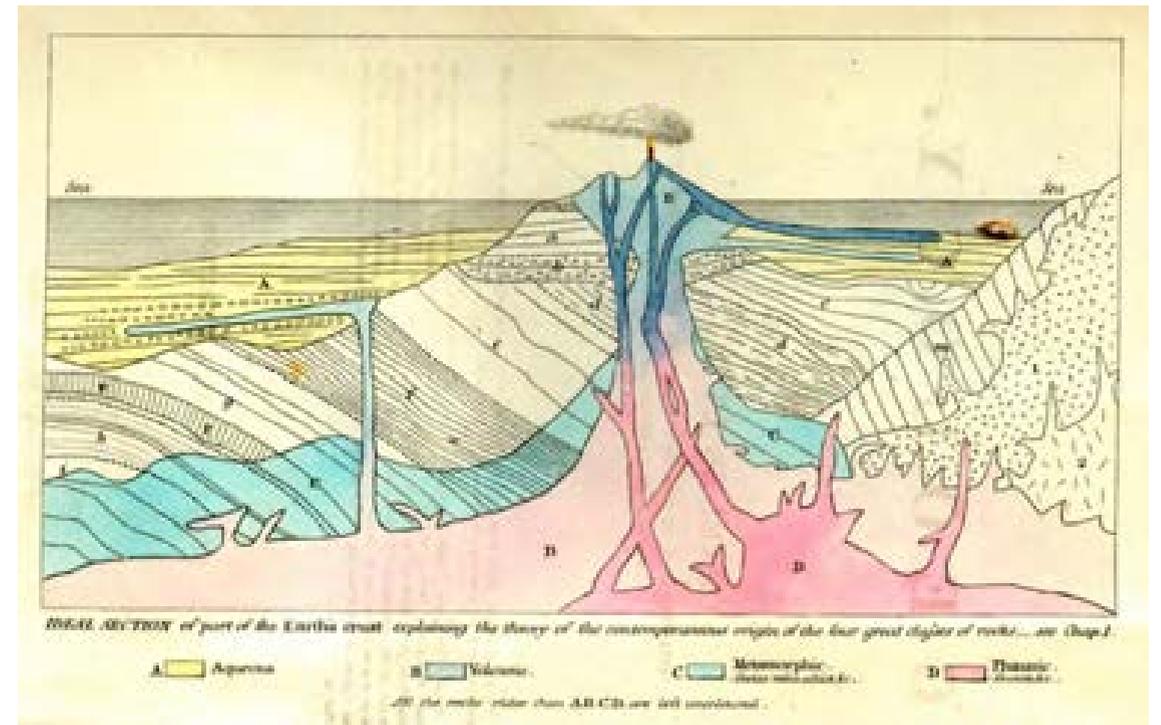
Parallel to the strategy of biomorphic form generation, a second tendency looks toward the collective behavior of ecological systems as a model for cities, buildings, and landscapes. If the first approach has been primarily formal and metaphorical (the buildings in question do not actually move), the second has been more operational and performative, producing buildings or landscapes that aim to embody the flexibility and adaptability of natural systems. Throughout the decade of the 1990s, many architects (and I include myself) looked to landscape architecture and ecology as models for a productive synthesis of formal continuity and programmatic flexibility. This interest in the ability of field-like organizations to distribute and channel the flows of energy, information and people on site coincided with the potential of the computer to model complex surfaces. Architecture, which had traditionally been associated with the vertical plane and bounding partitions, dissolved into an extensive horizontal field of interconnected surfaces.

In landscape urbanism, the traditional tools of landscape architecture are expanded in scope and dimension to encompass large and often distressed urban





Wood Teaching Models of Crystal Forms, Germany, c. 1900
 Opposite: Charles Lyell, Principles of Geology, 1857

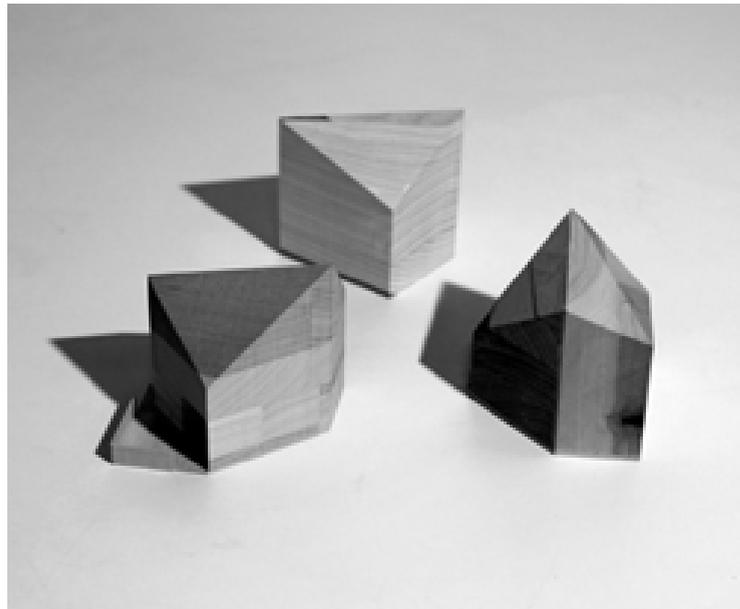


sites. Landscape urbanism has, by definition, an interdisciplinary orientation; it recognizes that the city is a complex and multifaceted problem that requires diverse expertise. It is time-based and process oriented, operating of necessity on a long-term horizon of implementation. Ecologies, unlike buildings, do not respect borders. They range across territories and establish complex relations operating simultaneously at multiple scales, from microscopic to regional. Landscape urbanism mobilizes these insights to craft an interdisciplinary, strategic approach to the challenges of large-scale urban sites. But at the scale of the building, the specific agency of architecture can be lost within this expanded field.

Against these dominant tendencies then, the work collected here maps out an alternative trajectory. It begins with the insight articulated so beautifully by Jane Bennett in her 2010 book *Vibrant Matter*: it is unproductive to divide the world into animate life on the one hand and inanimate matter on the other. Rocks and butterflies, in her account, are both alive. Bennett's book is subtitled "A Political Ecology of Things," and her interests are social, political, and environmental.

We would do well, she argues, to give up the model of human subjects imposing their will over inanimate objects and instead pay closer attention to the life of things.

In architecture, Bennett's "elusive idea" of a "vital materialism" might suggest that the fundamentally mineral character of buildings and cities does not consign them to the realm of dead matter but rather requires that both life and materiality be reconceived. Bennett proposes an alternative ontology, based not on inherent properties but on variable rates of change: "the stones, tables, technologies, words, and edibles that confront us are mobile, internally heterogeneous materials whose rate of speed and pace of change are slow compared to the duration and velocity of the human bodies participating in and perceiving them. "Objects" appear as such because their becoming proceeds at a speed or a level below the threshold of human discernment." Life is no longer identified exclusively with singular, animate bodies modeled on our own, but instead—as is the case in much current scientific thinking—with intricate and dynamic operations of information exchange. Life is most



Above: Le Corbusier at the Acropolis, 1911
 Left: Hudson River Studio, Study Models
 Opposite: Array of Paper Study Models, SAA studio, 2014–2015



dynamic at the microscopic level: it is molecular, viral, bacterial, chemical, geological, and metallurgical. As Bennett argues, "There are ... always a swarm of vitalities at play."² This in turn has profound implications for our way of being in the world.

Architecture is situated between the biological and the geological—slower than living beings but faster than the underlying geology. Geological form does not reject formal or operational complexity in favor of reductive models. It learns from ecology and landscape, but aligns itself with the harder materials and the slowness of the ground. If, as Bennett argues, there is no sharp divide between animate and inanimate, but rather a continuum based on speed, it is self-evident that architecture gravitates toward the slower end of the spectrum. Buildings—like the ground—are hard, stubborn, and slow.

The pragmatics of construction and inhabitation in architecture favor the rectilinear; geological form can accept this without conflict or anxiety. Hence a formal language of compact, faceted objects, visible iconic

forms, part-to-whole aggregations, crystalline formal arrays, stony artifacts, tectonic stacks, and mineral crusts. It might be argued that the shift from curvilinear biomorphic form to faceted geological form is simply a case of exchanging one metaphor for another; this may be true, but in crystallography and metallurgy, symmetries and formal relationships are structural and performative: they determine stability or strength of materials.

In place of the distributed, field-like organizations of landscape urbanism, geological form trusts in the compact power of specific object-buildings to absorb and transform the new potentials of landscape and ecology. But the visible, iconic form of these objects is less important than the part-to-part and inside-to-outside relationships that allow them to establish a complex interchange with their context. They operate as open-ended assemblies and porous envelopes. The projects shown here rework the opposition between object-buildings and landscape fields to create productive transformations of field-like effects at the scale of buildings.

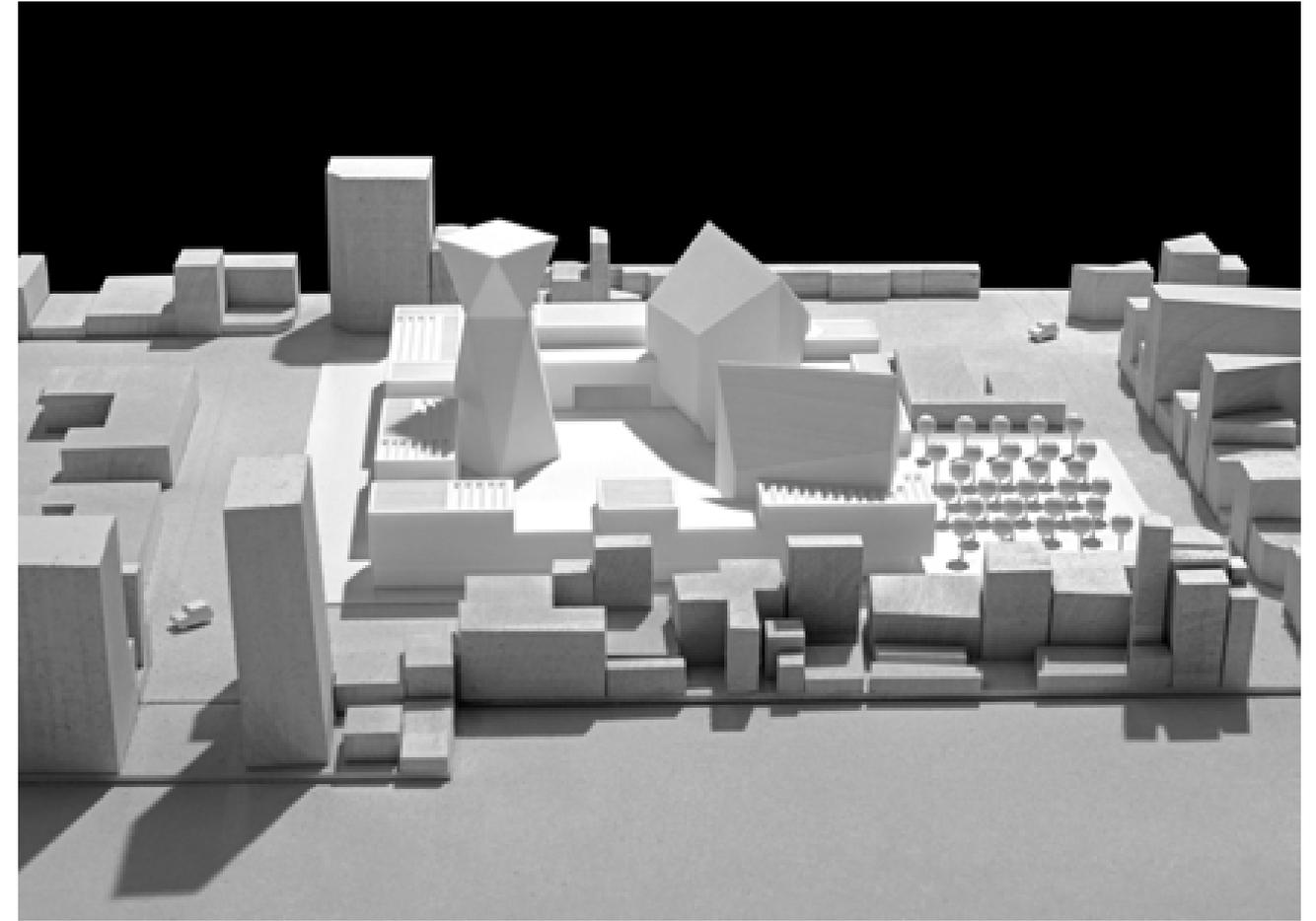


The final third of the 20th century saw an accelerating shift from the hard technologies of production to soft technologies of reproduction and communication; a shift from artifacts to information exchange. Parallel to this has been a growing awareness of a new challenge: the fraught relationship between humans and nature as it becomes increasingly clear that the 20th century's technological prowess has the capacity to inflict environmental damage at an unprecedented scale. Many geologists assert that we are now living in a new era—the Anthropocene—characterized by the dominant and ubiquitous influence of mankind on the earth's lithosphere. Human agency, coupled with ever more powerful technologies, has created changes of such magnitude and duration that human history now shifts to a geological time frame. And so, if the grand narrative of

the 20th century was the progress of technology, the challenge for this century will surely be to come to terms with mankind's fraught relationship to nature. The project of geological form reconceives architecture and urban fabric as geological matter: hard and persistent, yet capable of accommodating change over time. Nature is understood broadly and generously, a vital ecology that encompasses both the unyielding mineral strata and the ephemeral, fluid interactions of life itself.

Notes

1. Jane Bennett, *Vibrant Matter: A Political Ecology of Things*. (Durham: Duke University Press, 2010), 57-58.
2. *Ibid*, 31-32.



Opposite: Gottfried Böhm, Church of the Pilgrimage, 1968
 Above: New Maribor Art Gallery, Photomontage