Whence Architecture

Commentary
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Abstract
Architecture is routinely taught and practiced as an art and science of extraction. In this modality, design is construed as ideas and geometries imposed upon extracted matter and energy, as represented here through brief material stories of the *Salk Institute for Biological Studies* and the *Seagram Building*. This habit contributes decisively to our inherited broken world context. Other interpretations of design are possible that tend and mend the world through design and building. This reflects a more immanent relation expressed through design. A regenerative future for architecture is only possible through immanent relations, as represented here in a forest-first approach to timber building.

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Sometimes architecture needs repair. The elevator does not work, and the roof leaks. But architecture is also often broken in bigger ways, especially because we live in an inherited, broken world in which design proves rather fragile. However, architecture is also sometimes the means through which repair is enacted. There is an architecture of repair, just as there is an architecture of brokenness.

Regarding the latter, while working as a janitor and draftsman at the *Salk Institute for Biological Studies* in La Jolla, California, I was struck by the iatrogenic tale of the Institute's teak window assemblies. The Salk Institute windows (Moe, Friedman, 2024) present a curious case of repair in which efforts to maintain a certain vision of the teak ultimately created conditions for its demise; think of it as a case of the Munchausen Syndrome by Proxy for buildings. In this case, the Institute's founder, Dr. Jonas Salk, strongly preferred the hue of the freshly cut and installed teak, while the building's architects, Louis Kahn, preferred a rougher, weathered appearance of the wood in the otherwise grayscale chroma of the architecture. Neither protagonist prevailed, however. Instead, a black biofilm developed on the surface of the wood. This biofilm appeared only on account of a tri-continental, multi-century convergence that placed Burmese old-growth teak in the same environment as a wiry Australian eucalyptus plantation on the Torry Pines Mesa. A spore from the eucalyptus gathered on the teak surface, creating the black biofilm. Under Dr. Salk's directions, maintenance crews alternately used wire brushes, chemicals, and sand blasting removed the material, which was deemed a discoloration of freshly installed teak wood. Ironically, this attempt at vainly preserving the appearance of fresh teak resulted in its demise, as these treatments wore successive layers of teak wood cells away to reveal the hue of fresh cells. This amalgam of design, repair, and colonial activity reflects a mix of hubris and fragility that entails everything from personal preference to precarious planetary production and deleterious repair of building details. The details of architecture might break and require repair, but the details of those details are where fragility really looms.

In research on the terrestrial ecology of the *Seagram Building* in midtown Manhattan, I traced the iconic amber-hued glass of this tower to its production site in Butler, Pennsylvania. Mies van der Rohe and the client, Samuel Bronfman, sought a unique glass composition for the tower-billboard: an amber-tinted glass that reminds us directly of the amber-hued distilled grain liquor that is the source of Bronfman's fortune, and which paid for the tower (the most expensive building of its time). The selected and specified mixture of glass could only be produced using a pre-modern 'pot' method. This is distinct from a modern float glass method of production. It was a slower, more labor-intensive plate glass production method that involved pouring liquid glass composition out onto a rolling cast iron table that drew the glass into the required thickness. One company, the Standard Plate Glass Company in Butler, Pennsylvania, was

willing to fabricate glass with this method. While producing the Seagram glass order, other glass manufacturers in the region converted their factory infrastructure to a novel and very efficient Pilkington float glass technique. Upon completion of the Seagram order, the Standard Plate Glass Company went bankrupt, unable to compete with competitors' float glass technique. As the largest employer in the town at the time, this bankruptcy pushed Butler into its rust-belt economic depression in the second half of the Twentieth century and into the Twenty-first century. In this regard, the fate of Butler, Pennsylvania is but one of many in rural America. The economic neglect and political discontent of such regions became the base of Donald Trump's populist MAGA agenda and this explains why Trump scheduled a July 2024 campaign rally in Butler, Pennsylvania that concluded in an assassination attempt that fomented increased support and reverence amongst his political base. Again, the details of architecture's details are where fragility really looms.

These two examples of fragility – even in the seemingly most robust of modernist architectures – help illuminate one of the most systemic, but least considered, ways that architecture breaks its world: the extraction and sourcing of its material basis. Architecture, as taught and practiced, is an art and science of extraction. Architecture's taught and practiced indifference to how building reorganizes the thin surface of this planet is central to its contributions to changing climates, social and environmental injustice, and its abject political indifference.

As a means towards a non-extractive architecture practice, and because I work on the biotechnics of timber building, I recently completed a forest ecology degree. My motivating query was: how might I begin to design and build in a way that reinforces the forest and communities from whence my timber components emerge? How might I reciprocally design a timber building that regenerates multiple aspects of its terrestrial ecology? Such questions are central to any coherent conversation about regenerative design. To properly pose these questions we must first fully acknowledge that our present pedagogies, practices and policies related to building remain inexplicably focused on an unrepentant *take/make/fake/break paradigm* that takes land and resources to make products and assembles buildings. To do so, this paradigm construes data to demonstrate purported environmental virtue and putative sustainability, and then demolishes any building that stands in the way of another cycle of this paradigm's planned obsolescence. This paradigm is inherently extractive, and it is driven by what ecological economics describes as a receiver theory value. This approach to valuation will never be regenerative because externalities, metabolic rifts, unequal exchanges, and environmental load displacements abound in this mode of top-down mode of value. Based as it is on receiver theories of forests and buildings, the timber building industry historically, and especially mass timber presently, reproduces too many aspects of the take/make/fake/break paradigm through its genre of extraction, centralized capital, errant carbon accoun-

ting, and how it breaks not just buildings but rural places and people. In no way can one construe mass timber as a regenerative proposition given the history, present conditions, and future trajectories of the forests in my region, the northeast portion of the United States. The secondary forests here are ecologically and socially unlike the richness of old forests and exhibit dramatic changes in species composition, fire ecology, soil conditions, and land use. Present secondary forests are much younger and more homogeneous than primary forests. These degraded forests are now once again in decline on account of the financialization of the northeast forest, biomass fuel extraction, and continued exurban development. All this leads to degraded, understocked forests in key portions of the northeast and overstocked stands in most other portions. Further straining that manifold degradation, the Northeast continues to consume more timber than it produces, with an emphasis on low-quality, very short-life pulp and pellet product exports and lumber imports.

If we intend a mode of regenerative design that actually regenerates environmental and social conditions rather than further degrades them – that is, if we for once actually wish to do good rather less bad – then at some point we must finally enact a contrasting theory of value, known in ecological economics as a donor theory of value and wealth that puts the bio-geophysical work of the planet and human labor first as the source of real growth and wealth. To this end, in my work, I place the forest first as a pretext for thinking about the terrestrial ecology of timber building. To do so, several years ago, I moved away from tenured professorships to a rural forest in Vermont, completed the degree in forest ecology to augment my understanding of construction ecology, and reoriented my decades of timber design and building experience around land-based approaches. It was no longer adequate for me to talk about timber and forests in the abstract. I needed to change pace, because forests operate on vastly different cycles than academic semesters, grant cycles, and construction schedules. I needed to revise core assumptions about both building and forests. Rather than taking and making, I needed to learn how to tend & mend forest conditions as a pretext for minding forest-building relations.

In short, a non-extractive/regenerative mode of research, design, and building requires an alternative paradigm for architecture that places the tendencies and fragility of world relations and terrestrial processes first, and then determines which configurations, structures, and details would work to amend prevailing conditions, pushing life towards preferred conditions. One way to describe the prevailing paradigm in architecture is *hylomorphic* (Simondon, 1967). According to philosopher Gilbert Simondon the hylomorphic model is a Western philosophical tradition in which human ideas are imposed on seemingly neutral worlds of (extracted) matter and energy. As Manuel DeLanda (DeLanda, 1997, p. 499) describes this tradition, “one constant in the history of Western philosophy seems to be a certain conception of matter as an inert recep-

tacle for forms that come from the outside." In this schema, transcendent forms derived through geometry and narrative are determined and designed in a manner independent and a priori to matter and energy. In this traditional paradigm, human ideas, will, demands, norms, and hubris transcend the material and energetic dynamics of the world, which are treated as but the enabling extracted substrate of human action and economy.

In contrast to the dominant tradition of imposed, hylomorphic form, an immanent and materialist understanding of formation and appearance has developed over the past century in both science and art. In this alternative tradition, how things form and appear in this world is contingent on certain terrestrial propensities and processes, a philosophy that is more consistent with relational ways of knowing and practicing. As DeLanda, observes, in this tradition the "resources involved in the genesis of form are immanent to matter itself." (DeLanda, 1997: 499) In other words, the material and energetic dynamics of the world are inherent to what appears in our world, and how. Note, though, that in this immanent philosophy, a design is *not determined* by these terrestrial contingencies and propensities, but it is understood as *dependent on* them. In an immanent world of design, designs are not imposed but emerge from a composite of carefully studied contingent conditions *as matched with* intended outcomes. A non-extractive/regenerative paradigm of architecture requires a synchronization of contingent conditions and intended outcomes. Today, design could begin with the details of inherited, broken world to reason and imagine designs that tend and mend present conditions rather than yet again impose hylomorphic fantasies upon an extracted and abstracted world. The reciprocity between the fragility of received conditions and the construal of designs that truly regenerate the material and social conditions of life on the thin surface of this planet constitutes the most compelling aesthetic, political, and technical project for architecture in this century. Thus, whence architecture? What, in new ways, motivates architecture and its reconfiguration of life?

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