



Mixing Urban Cocktails

“Chemistry is technically the study of matter but I prefer to see it as the study of change.”

—Walter White in *Breaking Bad*

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TESTING CHEMICAL PARADIGMS IN URBAN DESIGN

In a recent interview¹ the Philosopher Iain Hamilton Grant noted a cultural shift from a paradigm of *physics* towards a paradigm of *chemistry*. The chemical paradigm he argues, favors synthesis over analysis and reciprocity over linearity. Knowledge in this paradigm can neither be advanced by methods of deduction nor concluded as a direct result of any analytical, data-driven process. Instead, within the chemical paradigm, nature is sufficiently understood only through the act of “recreating”² it. Therefore, analysis and synthesis become intertwined and are nested within each other rather than being vertically structured in a hierarchical order. If however knowledge is not complete without production then we must surmise that we can only truly know the nature of a “thing” through the process of actually *making* it. But through the making, of course, we also fundamentally alter the thing itself thus causing a paradoxical conundrum.

This paradox touches on the well-established ontological problem, which originated from the modern human/world paradigm’s removal of the world (or essential parts of it) beyond the grasp of a sensual subject (human or otherwise). It leaves us in turn with a world where the type of knowledge that we can rightfully acquire is based on reason and observation alone. Measurements, numbers, primitive shapes, data are deemed “objective” and hence knowable, everything else on the other hand is based on subjectivity and therefore of no larger relevance (since it is not universally verifiable).

The chemical paradigm does not allow for such a polarizing argument and attempts to tie together the subject-object or human-world relationship in much more complex and ambiguous ways. The chemist’s process of synthesis relies heavily on the use of his senses (olfactory, visual, and haptic) without denying the “objective” qualities of the substances and aggregates he operates with. Furthermore, if the process of making is fundamental to knowledge of the object-world, then by definition the subject becomes substantially ingrained in this very process rather than being merely a bystander who can only ever know half of what he perceives to be the world.

By challenging modernist human-world correlations through the paradigm of the chemist, yet another interesting question arises: The hotly debated question or definition of *nature* as manifested within our contemporary cultural condition. The world (or nature) as we understand it has shifted from the *thing* that provided us with resources to utilize and govern our environment, to the *thing* that now needs to be rescued from and by us in order to survive. Of course, its very survival determines our own fate as well. But in either case our patronizing, human-world mentality shines through and prevents us from any fundamentally different approach to understanding and conceptualizing both nature as well as ourselves within it.

Here, the architectural questions begin to move to the foreground. How can we speculate about future cities in ways that avoid falling into the double trap of the analytical paradigm and the human-world dilemma? What will they look like? How will they function? What new desires will they evoke and how will they fail? These are some of the questions that motor this urban design studio as it advocates an experimental, radical, and unprecedented way of thinking and (re)making of cities/natures in the future. By the same token, the studio also formulates a critique against what I perceive to be two popular current strands within the fields of architecture and urban design.

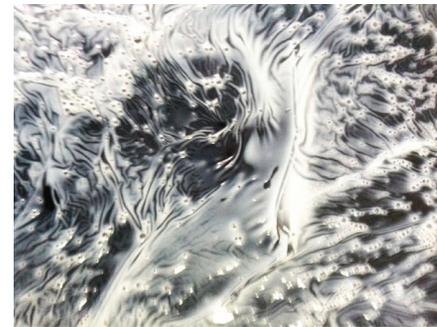
URBAN DESIGN: TWO DOMINANT CONTEMPORARY CATEGORIES

Urban Design studios nowadays (if they are progressive) tend to fall into one of two major categories. The first one, squarely situated in Grant's physics paradigm, is driven by research data and analysis, where *solutions* to a problem are developed in a causal and linear fashion. For instance, lack of public space is countered with more recreational parks, traffic congestion with more public transportation, and environmental problems with more sustainable technologies and regulations. While all this seems perfectly sensible from a contemporary vantage point, it merely produces an introverted and perpetual catch-up game between problems and solutions without any real progress, vision, or idea.

If analysis (or any other type of diagnostics, information diagramming, mapping, etc.) becomes the unquestioned and monarchic departure point for a design intervention, then any approach to the design itself will necessarily have to be based on a *correlationist* principle. Design at that point, by definition, cannot evoke true novelty, as it cannot possibly reach beyond the causal and relationist loop of the analyst and the referent. Both substance and knowledge is thus reduced to an existing (and often failed) network of relations and information with no possible way out.

The second category has come to be known as "Parametricism". While the term *parametric* suggests a similar ethic to the data- and analysis-driven category with its emphasis on relational networks and verifiable, objectified truths, it actually describes quite a different design philosophy.

Parametric urban strategies favor a totalizing approach, one that often displays coherence and beauty, but usually undermines its own claim for variation and adaptation by generating monotonous acts of self-similar repetition. The emerging worlds in this scenario are homogeneous and highly



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Figure 1: Chemical Prototype, Daniela Mercado.

Figure 2: Chemical Prototype, Daniela Mercado.



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Figure 3: Urban Proposal,
Alfonso Patarroyo.

controlled by the author. Proponents of it stress the use of design-“systems” in an attempt to imply an *a priori* logic and validity, which is established independently from the actual project itself.

This reliance on a pre-existing, ordering principle also conjures up past modernist notions such as *machine* and *grid* albeit replacing them with the more fashionable terms *system* and *field*. Parametricism therefore falls into the very same category from which it claims to free us. While the tools/machines are more advanced and the aesthetic updated, the underlying principles of this approach fall well into the modernist paradigm.

SYLLABUS

In an attempt to circumvent the shortcomings of these two dominant strategies and to engage the topic of urban design in an unprecedented way, this studio focuses on methodologies that put Grant’s notion of the chemical paradigm to test. In particular, the onus is placed on the production of material aggregations and patterns as a counterpoint to an analytical model. Emerging qualities of matter, color, texture, etc. will be investigated in earnest toward possible architectural and urban organizations and atmospheric effects.

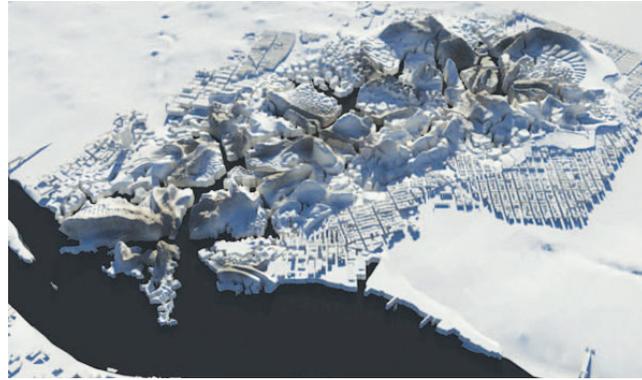
The students will devise techniques that allow them to manipulate molecules and forces well enough to deliberately guide the pattern-making process. In a second step, the material patterns will be digitized through a series of computational procedures. This process, however, is not passive, as software will impact the quality and expression of the patterns by transforming them into points, lines, clusters, volumes, and geometry.

In the final step, the students, through further refinement of their patterns, will envisage novel urban futures in which commonly accepted boundaries between human and world, nature and city, program and form, organization and growth, infrastructure and building will be challenged and reformulated.

EAST RIVER ESTUARY - NEW YORK CITY: PROJECT SITE

The estuary is an organism as well as an object. It is made out of organic and non-organic matter with a multitude of changing physical properties and atmospheric qualities. But it also has a recognizable shape, figure, and morphology, which gives it its iconic character. Rock, sand, earth, water, and vegetation have, over millennia, generated this morphology through distinct formations, some purely by force of nature, and others purely by force of man, and yet others by a combination of both.

The estuary also features a changing urban cross-section with distinct zones and programs. Every undulation of its coastline is expressed by an ever-changing panorama of residential high-risers, industrial plants, navy yards, and small-scale urban housing. These changes, of course, are also a reflection of power structures, social strata, and civic organization. All these qualities together are the East River estuary and serve as the experimental ground for this project.



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DESIGN ETHODOLOGY

I. Mixing: The students will begin their process by generating material patterns through analog means. In small laboratory setups each student will devise and record experiments with common everyday ingredients and tools. Since chemical synthesis is a material process, it favors by definition the engagement of our senses over our intellectual capacity. Molecules interact in ways that are visual, audible, olfactory, and tactile. Pouring, filtering, stirring, and mixing become techniques that bind the chemist-designer in a visceral way to his own production. Emerging structural-organizational behavior is observed, evaluated, and further refined in accordance with the goals that each student formulates during the process of mixing.

II. Digitizing: In a second step the material formations will be digitized through a number of individual computational steps, which combine patternization, 3-dimensionality, color, and texture into a single, multi-layered model. This model can now be tested, appropriated, and further refined based on specific questions of scale, program, and urban morphology. However, the goal is to maintain the “chemical” character of the original material and to deliberately work within the threshold of the analog and digital realms.

III. Ambient Urbanism: In the final step the students will begin to engage questions of ambience in regards to urban strategies. What are the potentials of a chemical approach that blends together the concrete with the intangible? How can material and sensual experiences have an impact on urban morphology? How can one large, differentiated *mélange* of things help re-define and further a new understanding of nature as a concept that impartially synthesizes both *natural* and *synthetic* matter? ♦



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Figure 4: Urban Proposal, Luana Reis.

Figure 5: Urban Proposal, Luana Reis.

ENDNOTES

1. Iain Hamilton Grant, *The Chemical Paradigm-Collapse Volume VII* (Urbanomic, UK 2011)
2. Iain Hamilton Grant, *The Chemical Paradigm-Collapse Volume VII* (Urbanomic, UK 2011) p.41.