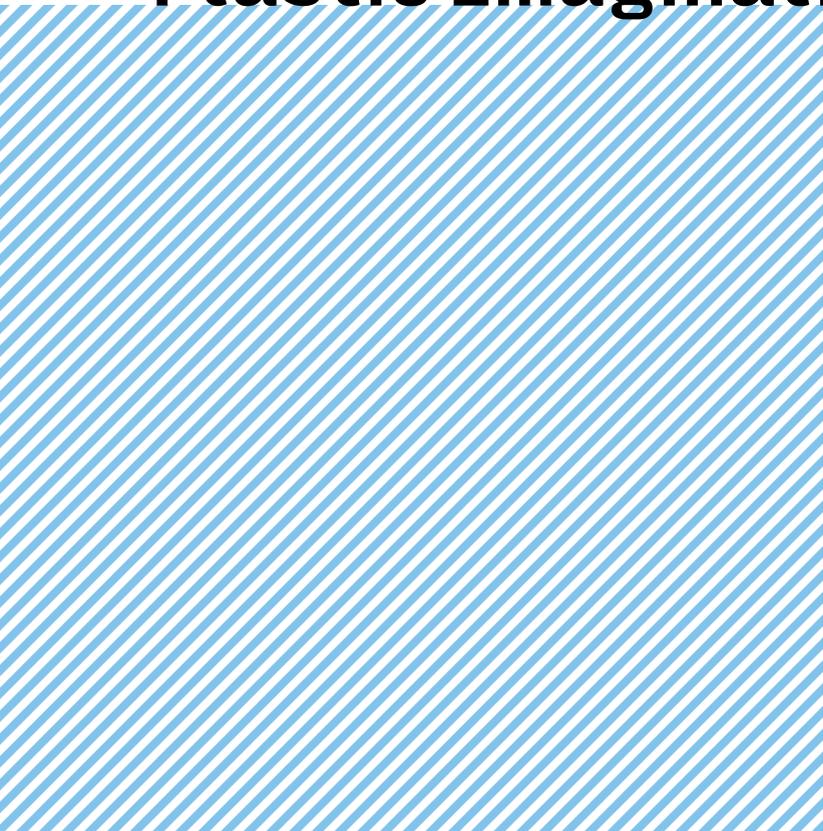


Plastic Imagination



This essay connects a material substance—plastic—to a particular kind of cognitive process—imagining. It cites texts that reveal how plastic, now a ubiquitous material, represented something unreal to many people when first introduced to the general public in the 1950s, triggering a cognitive response that hovered between the empirical and the imaginary. Furthermore, the material was associated with a particular type of aesthetic experience, namely wonder.

Roland Barthes must have been the first to engage the material from a deeply philosophical standpoint. He wrote an essay entitled “Plastic” sometime between 1954 and 1956, after seeing a trade show where he witnessed “perfectly formed novelties emerging from an injection-molding machine”¹ and became mesmerized by the “transmutation of matter” from “a heap of greenish crystals” into “the finished, human object.”² Through injection molding and other processes, particulate plastic could become “suitcase, brush, car-body, toy, fabric, tube, basin, or paper.”³ “[P]lastic is the very idea of its infinite transformation,” Barthes continues, and the fact that he saw “nothing but transit” between the two states caught his attention. Millions of possible combinations of molecules producing endless new forms seemingly without human intervention convinced him that plastic was a “miraculous substance” and that the process could not be explained by reason alone.⁴

Written in a style more poetic than descriptive, as if to mimic the pliability of the matter in question, Barthes’s essay draws our attention to one of the central questions surrounding plastics, namely the fact that the material seemed to embody pure spontaneity without obvious intent. This kind of creation without design challenged man’s relationship to nature and, by extension, to art. The resulting question, how to make sense of something that we can’t quite see and understand, lies at the heart of Barthes’s inquiry. By denying the reader a visual description of the objects he saw, Barthes seems to imply that the phenomena was not presentable through reason alone.

Herein lies the crucial paradox of Barthes’s essay: in conventional aesthetic parlance, “plastic arts” refers to the processes of molding raw material, such as stone or clay, into visual, “plastic” forms. Yet, unlike materials such as stone or clay, plastic does not exist in chunks of raw matter waiting to be worked with human hands. Indeed, plastic is in many ways unique in this regard: as a synthetic material, it retains its molecular proto-state and is thus able to metamorphose into any form without material friction. In the case of plastic, form and material are inseparable; rather than being imposed from without, form is generated by a single gesture, or what Barthes calls a “trace of a movement” within the matter.⁵

What interests me here is how the absence of agency leads Barthes to challenge the traditional cognitive paradigm central to modern aesthetic theory, which assumes that



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we first perceive something primarily through vision and then process the sensuous image in our mind's eye. Barthes convinces us that, as our eyes feel handicapped in the presence of plastic, all we can rely on is imagination. He talks about "the permanent amazement, a reverie of man at the sign of the proliferating forms of matter, and the connections he detects between the singular of the origin and the plural of the effects." While drawing our attention to the endless morphing of the matter, he also draws our attention to a cognitive condition. Barthes was surely aware that neurons in the brain boast an amazing plasticity, with hundreds of billions of possible connections, not so different from how the molecular string-structure of polymers can be reconfigured again and again. Indeed, Barthes draws a parallel between the activity of the matter and the activity of the mind. In that way, his essay is as much about the movement and plasticity of the mind as about the movement and plasticity of the matter.

The word "wonder," which Barthes uses to describe the cognitive state, captures the amazement he felt at the sight of the potentiality unfolding in front of his eyes. Importantly, by referring to the term, Barthes eliminates the pretension to knowing, unleashing, instead, the power of not-knowing. Barthes's beautiful prose bears witness to the pleasure of being on the threshold of knowledge; the text allows us to enter his mind at the moment when it enters a creative realm where imagination and reality form a continuous topology.

Barthes is not alone in celebrating this plastic state of mind. For Aristotle, wonder marked the beginning of knowledge and the impulse to gain deeper access to the perplexities of the world. He writes:

For from wonder men, both now and at the first, began to philosophize, having felt astonishment originally at the things that were more obvious, indeed, amongst those that were doubtful; then by degrees, in this way having advanced onwards, and, in process of time, having started difficulties about more important subjects [...].⁶We can also associate wonder to the discovery of *terra incognita*. In his book *Marvelous Possessions*, historian Stephen Greenblatt describes the state of wonder early voyagers to the Americas experienced in the presence of natives in a manner similar to how Barthes describes the continuum between external stimuli and cognitive response:

Wonder will link whatever is out there with inward conviction. For the early voyagers, wonder not only marked the new but mediated between outside and inside (Milton's 'One sees/Or dreams he sees'). Hence the ease with which the very words marvel and wonder shift between the designation of the material object and the designation of a response to the object, between intense, almost phantasmagorical inward states and thoroughly externalized objects that can, after the initial moments of astonishment have passed, be touched, cataloged, inventoried, possessed.⁷Similarly, in his last

book, *The Passions of the Soul* (1649), René Descartes uses the concept of wonder to denote responses caused simultaneously by external stimuli and bodily sensations. Wonder marks a state where knowledge is based on an instantaneous conviction of the subject more than on the objective qualities of the object.

What is thus so fascinating about Barthes's essay "Plastic" is how an observation of something as banal as a plastic object can lead us to reconsider the age-old duality between realism and idealism. On that point, Barthes was certainly influenced by Henri Bergson's hugely influential book *Matter and Memory* (1896), which established overcoming that divide as one of the main ambitions of twentieth-century philosophical as well as aesthetic thought. We can credit Bergson also for introducing the notion of *image* and, by extension, the notion of *imagination* to architectural thought as a third category between representation and the thing, as a site where ideas fold into reality, and vice versa. Barthes's indebtedness to Bergson is obvious. Like Bergson, he acknowledges that mind is not a stable entity but responds continuously both to external and internal stimuli.

Even though neither Barthes nor Bergson addressed architecture per se, both of them help us conceptualize the encounter with the material world in general, and architecture in particular. Their emphasis on imagination as an interphase between mind and reality suggests a new type of architectural experience, one where we are both constantly shaped by and shape reality. Significantly, Barthes's "Plastic" appears in his book *Mythologies* (1957), in which all included essays communicate the same message that the world possesses meaning beyond what is visible to the eye. The essay convinces us that everyday objects, in this case those made of plastic, do not exist only to fulfill functional tasks, but also speak to us sometimes in surprising and unconscious ways. Barthes wrote "Plastic" not simply to inform his readers about new materials, but rather to enjoy, and to help his readers enjoy, even if momentarily, a more active and passionate relationship to the surrounding world.

For this ability to trigger seamless topology between appearance and imagination, plastic occupies a particular place in twentieth-century architectural thought, particularly that of the late 1960s—a period particularly prone to utopian thought. As Barthes teaches us, when it comes to plastic, the imagined counts as much as the real. A Paris-based group consisting of intellectuals, artists, and architects called *Utopie*, active in the late 1960s and early 1970s deserves credit not only for actually using but also for articulating their attraction to "synthetic" and "ephemeral" materials like plastic in the magazine bearing the same name. That interest in new synthetic materials culminated in the 1968 exhibition *Structures Gonflables* (Musée d'Art Moderne de la Ville de Paris), which assembled various inflatable products, from high altitude weather balloons to beach balls, demonstrating in tangible

ways how the material was shaping the aesthetics of the everyday, creating, in so doing, a new reality.

Like Barthes, the members of *Utopie* were interested in everyday phenomena and, following in the footsteps of Bergson, their main goal was to create an embodied, responsive subject to counter the state of alienation that plagued the everyday life of the modern urban dweller. They, too, believed that imagination counted as much as the real. Citing Bachelard—not exactly the philosopher we now associate with the European avant-garde—their ideal was to overcome the purely material definition of architecture. The magazine *Utopie* cites Bachelard frequently, not least because he promotes the idea that all architecture, and particularly domestic architecture, is experienced both “in its reality and its virtuality, through [the person’s] thoughts and dreams.”⁸ Like Barthes, Bachelard and members of *Utopie* wanted to render the material world as a repository of imagination and wonder.

In their essay “Untimely Considerations of Inflatables,” members of *Utopie* write about how the new “technical ‘trend’ has given birth to a well defined category of the imaginary.” The text begins by tracing the Indo-European root of the word “pneumatics” to “*bhel*,” meaning inflation, and celebrates how “the balloon confers its visible form to the breath it contains,” as if “being swollen with vitality [...]” According to the authors, the human body is framed by some mythologies as a balloon for the soul: “It is, for the myths, the soul which, by entering the body’s envelope, borrows a shape which it keeps throughout life.” The goal, very much in the spirit of the 1960s is to feel more alive, “to be blown away,” as it were.⁹

Bachelard’s discussion of the productive interplay between image and imagination returns us what Barthes’ saw in plastics—that is, a realm of perpetual movement and innovation—when he writes, “images do not adapt themselves very well to quiet ideas, or above all, to definite ideas. The imagination is ceaselessly imagining and enriching itself with new images.”¹⁰ Matter occupied a particular position in this equation as something that could never settle for representation; instead, all matter was constantly alive and evolving.

Imagination thrives in matter and in the real; hence, “material imagination,” which Bachelard distinguishes from “formal imagination.”¹¹ Matter kept the imagination in perpetual motion.

Perhaps for this very reason, plastic fascinated avant-garde groups during the late 1960s. Ant Farm, Haus-Rucker-Co, and Coop Himmelb(l)au are just some of those that took an interest in pneumatic structures. In many images of their work, the subject is presented inside a plastic membrane, which becomes continuous not only with the body but also with memories and desires trapped in the body. Those groups and others did not conceive architecture as primarily functional or formal, but rather invested the whole discipline with a mandate for overcoming the

alienation and disconnection of people from the world. Without imagination, the world would cease being what it was meant to be: an endless process of becoming.

This essay has been modified from a paper delivered at "Plastics and Architecture: Materials, Construction, and Design," a panel at the Society of Architectural Historians Annual Conference in Buffalo, NY, in April 2013.

1 Jeffrey L. Meikle, "Introduction: A Matter of Definition," in *American Plastic: A Cultural History* (New Brunswick, NJ: Rutgers University Press, 1997), 3. See also Jeffrey L. Meikle, "Material Doubts: The Consequences of Plastic," *Environmental History* 2: 3 (July 1997), 279.

2 Roland Barthes, "Plastics," in *Mythologies* (New York, NY: Hill and Wang, 1972), 97.

3 *Ibid.*

4 *Ibid.*

5 Aristotle, *The Metaphysics of Aristotle*, translated by John McMahon (London, UK: Henry G. Bohn, 1857), 9.

6 Stephen Greenblatt, *Marvelous Possessions: The Wonder of the New World* (London, UK: Oxford University Press, 1991), 22.

7 Gaston Bachelard, in *The Poetics of Space*, quoted by Jean Baudrillard in "The Ephemeral," reprinted in *Utopie: Texts and Projects, 1967-1978*, eds. Craig Buckley and Jean-Louis Viloleau (New York, NY: Semiotext(e), 2011), 81.

8 Claude and Leon Gaignebet, "Untimely Considerations on Inflatables," reprinted in *The Inflatable Moment. Pneumatic and Protest in '68*, ed. Marc Dessauce (New York, NY: Princeton Architectural Press, 1999), 29.

9 Gaston Bachelard, *The Poetics of Space* (Boston, MA: Beacon Press, 1994), xxxii.

10 Bachelard introduces the notion of material imagination first in his book *L'eau et les rêves* (1942).

11 *Ibid.*

Review

In the Great Pacific Garbage Patch, a colossal accumulation of debris continues to rotate around the North Pacific. Though it is still unclear exactly how big it is and just how much debris is actually there, it is very big—unimaginably big. As you might know, almost all of the floating objects are plastic objects. In the various ecological catastrophes to be found in the world, plastic remains a primary protagonist despite all efforts to recycle, compost, or incinerate. It turns out, plastic is not so plastic after all.

Recently, it has been interesting to see the narrative of PLA plastics being incorporated into 3D printing technologies. The old magic of seeing plastic pellets being formed into bottles by machines is getting a refresh through the magic of extruded plastic filaments being melting and deposited in micro layers by robots. We're told that PLA is made not from bad petroleum but from nice biomass (starches from corn, potatoes, or beets). Though this story conjures an image of a rehabilitated plastic returning gently back to the soil (not unlike a corpse), the reality is that PLA is also quite resistant to losing its form (not unlike a soul). Most of it will still end up in the landfill, where it will be stored for some unknown future.

As these awful circumstances accumulate, at some moment you may notice that form does not enter or exit from nameless matter so easily. Whether it's plastic, metal, or even flesh, nameless matter is not so easily manufactured. Form has to be forced onto matter, and even more force is required to remove it. Whether it is a literal forcing via grinding, shredding, or incinerating machines or a conceptual one via ontologies of pure becoming, objects tend to stay objects until they turn into other objects when the human being is not there.

Biographies

Eeva-Liisa Pelkonen's scholarly work focuses on twentieth-century European and American architecture with interest in the genesis and meaning of architectural form within various national and historical contexts. She is the author of *Achtung Architektur!: Image and Phantasm in Contemporary Austrian Architecture* (MIT Press, 1996) and *Alvar Aalto: Architecture, Modernity and Geopolitics* (Yale University Press, 2009); a co-editor of *Eero Saarinen: Shaping the Future* (Yale, 2006) and *Architecture + Art: New Visions, New Strategies* (Aalto Academy, 2007); and editor of *Kevin Roche: Architecture as Environment* (Yale, 2011). Her essays have appeared in *Daidalos*, *Log*, *Perspecta*, and *306090*. Pelkonen's book on Saarinen received the Philip Johnson Award (Society of Architectural Historians) and the Sir Banister Fletcher Award (Authors' Club of London), and her book on Aalto won the Alice Davis Hitchcock Award (Society of Architectural Historians). Before coming to Yale, Pelkonen practiced architecture in several European firms, including Reima and Raili Pietilä Architects (Helsinki) and Volker Giencke Architects (Graz, Austria). She is currently an associate professor at the Yale School of Architecture and a design associate with Turner Brooks Architects.

David Ruy is an architect, theorist, and co-director of Ruy Klein, an experimental design office based in New York City and one of the most respected speculative practices in architecture today. With special interest in the overlapping of artificial and natural regimes in an increasingly synthetic world, Ruy Klein explores contemporary design problems at the intersection of architecture, nature, and technology, including topics such as indeterminacy, the merger of computational and ecological movements and feral technologies. Ruy is an associate professor in the Graduate School of Architecture at the Pratt Institute, where he is also the director of the Network for Emerging Architectural Research (NEAR). Ruy received a B.A. from St. John's College, where he studied philosophy and mathematics, and an M.Arch. from Columbia University.

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