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MOLECULAR SCULPTURE

By *Ruba Katrib*  August 22, 2017 1:09pm



Chemical and biological processes open the encounter with artwork to nonvisual modes of sensation.

BY PRESENTING AN empty-looking glass ampoule as his 1919 sculpture *50 cc of Paris Air*, Marcel Duchamp brought invisible molecules into the purview of sculpture. The work is not just a conceptual proposition; the ampoule actually did contain Parisian air when the work was first made. Since the piece was subsequently broken and repaired, the geographical coordinates of the air sample's origin are now in question. Yet in any case, the title of the work encourages the audience to look at the invisible element that all things, including artworks and their audiences, coexist within.

Duchamp was a progenitor of site specificity. In works like the gallery-filling installation *Sixteen Miles of String* (1942), he examined the exhibition context and how it affects the way objects are perceived—a topic that has come to dominate the discourse around sculpture from the postwar period to the present. Duchamp’s inclusion of nitrogen and oxygen as primary materials in an artwork, and his naming of the location where those materials were sourced, prefigures the concerns of many artists working today.

In recent years, several artists have engaged with chemical reactions to create works about the molecular compositions of substances. The similarity of these approaches to the lines of thinking in philosophical movements like object-oriented ontology, speculative realism, and new materialism, which aim to reconfigure relationships between humans and nonhuman agents and entities, has led a number of curators and critics to position such art in terms of those discussions.¹ But it can also be seen in connection with artistic inquiries into site and context dating back to Duchamp’s *50 cc of Paris Air*.

When artists acknowledge molecular interactions and their effects, their conceptual gestures bring out the histories and cultural contexts of their materials. When viewers pay attention to the interconnectedness of invisible and visible elements, it alters their encounter with a work of art. Duchamp’s 1919 language-based gesture of titling a work with a measurement of air has been perceived for nearly a century as a proto-Conceptual move. But it can be newly discussed as a precedent for works that incorporate imperceptible entities as their medium and site.

IN **NINA CANELL**’S *Perpetuum Mobile (40 kg)*, 2009–11, ultrasound waves generate mist from a basin of water. A bag of concrete mix rests nearby. Over time, the mist moistens the cement in the bag, though there isn’t enough water to immediately cure the mixture. This demonstration of cause and effect underscores the malleability of even the toughest materials. The mist in *Perpetuum Mobile (40kg)* wets the mix and enters viewers’ nostrils. They feel the humidity on their skin. The air of the exhibition space interacts with the damp concrete as an unnamed yet necessary actor that enables the gradual effect of the work. The chemical interaction of substances creates an atmosphere that permeates viewers’ skin and bodies, lingering even after they have left the exhibition.

In addition to exploring material transformations like these, artists are engaging chemical components invisible to the human eye, but perceptible through other senses. Smell is important to artists like **Pamela Rosenkranz** and **Anicka Yi**, who work with the unseen process by which matter enters the nostrils and binds to neurons, triggering physiological responses and cultural associations. In Rosenkranz’s *Our Product (Conversation)*, 2015, a pool of shimmering, thick, pink, fleshy liquid gives off a scent engineered to mimic that of a baby’s skin. Rosenkranz has also included cat pheromones in a number of her artworks, most recently in a solo exhibition at **Fondazione Prada** in Milan last spring. *Infection* (2017) features a synthetic cat pheromone used as an ingredient in perfume. Known as civetone, the chemical is derived from animal musk, and it can either repel or attract people and animals depending on its concentration. Rosenkranz contends that the chemical generates particularly strong responses from women who carry *Toxoplasma gondii*, a common parasite that reproduces in cats; and she has read studies finding that infected women are also more likely to wear designer clothes.² Rosenkranz thus points to the possible connections between seemingly disparate elements such as chemical exposure, parasites, and shopping habits. Yi’s *Washing Away of Wrongs* (2014) consists of two commercial clothes dryers installed in a wall. They contain synthetic fragrances that chemically approximate the smells of prehistoric wetlands and yellow-throated bullfrogs. These “interpretive” scents contrast directly with the good smells and cleanliness associated with the dryers. Mostly unpleasant, the scents in Yi’s installation summon the existence of complex organisms from places and times far beyond the household environment of the dryer.

Both Rosenkranz and Yi use synthetic replicas instead of organic scents, relying on scientist collaborators to determine the molecular compounds that will best imitate their scent referents. As with synthetic flavors, the fidelity of the result is up for debate. That indeterminacy can be the point. At the entrance to “Life Is Cheap,” **Yi’s recent solo exhibition at the Solomon R. Guggenheim Museum in New York**, insecticide canisters emanated a scent designed to mimic the artist’s conception of the smells of both Asian American women and ants. It would be difficult to discern to what extent the scent she concocted is actually connected to these subjects; rather, the odor stimulates not only viewers’ sense of smell but also their reflections on the relationship between biological and cultural identity, which can be just as strange as the scent itself.

IN HIS 1966 ESSAY “Entropy and the New Monuments” **Robert Smithson** discusses why he and his colleagues eschewed traditional sculptural materials such as marble and granite in favor of artificial ones, such as plastic, chrome, and electric light to make works that “are not built for the ages, but rather against the ages.”³ Smithson was primarily interested in the disposability of industrial materials used in construction, in opposition to the permanence of materials used in monumental sculpture. In the ’60s, people were only beginning to realize that while these materials are cheaper and easily replaced, they would stick around in oceans and landfills for centuries. Nevertheless, Smithson’s main point remains: the materials used by artists can refer to and push up against time spans and environmental realities bigger than the site where the works are exhibited.

New industrial materials were central to the investigations made in Smithson’s milieu—and now artists are turning to the microscopic to continue to reveal a multiplicity of life spans and scales through their choice of material. They are pushing substances to reveal their complex biological and chemical compositions, as well as being responsive to the microelements of any given exhibition site.

Rosalind Krauss’s canonical 1979 essay “Sculpture in the Expanded Field” laid out a framework for understanding modes of working with site initiated by Land artists and Minimalists.⁴ Since then, the sociopolitical dimensions of architecture and landscape have become key factors in sculptural practice and criticism. Miwon Kwon has more recently highlighted the fact that the site of a work is both physically and culturally determined. After Minimalism and institutional critique, site specificity implicates not only codes of the institutional framework and the architecture or topography of place, but social contexts and cultural associations as well.⁵ New practices and scientific discourses have brought chemical processes into the fold of the site, as sculptural practice expands to accommodate human relationships to microscopic materials.

La déraison (2014), **Pierre Huyghe**’s cast-concrete sculpture of a reclining female nude, puts a biological twist on a classical subject. Headless and hollow, the body radiates heat from an internal system that duplicates human body temperature. The moss and pools of water in the crevices on the surface make the sculpture resemble an unmaintained outdoor monument, but the growth in combination with the palpable heat emanating from the stone instead evokes life and symbiosis. Huyghe counters typical perceptions of stone as a cold material, and turns moss into a sculptural element rather than an unwanted growth. Furthermore, the moss becomes host to a slew of unnamed entities, making the work part of an ecosystem.[pq]The chemical interaction of substances creates an atmosphere that permeates viewers’ skin and bodies, lingering even after they have left the exhibition.[/pq]By introducing the life cycles of various small and microscopic species into a

seemingly static object, Huyghe takes Smithson's notion of entropy even further, subjecting his works not only to time and erosion but also to the needs of plants and animals, which could overrun the sculpture if left to do so. Though the work offers a classical image, it also points to another, less perceptible world of microorganisms transforming and living off its topography.

The air, light, and moisture of the exhibition space determine whether the chia seeds in **Rochelle Goldberg**'s sculptures sprout or remain lifeless. Goldberg's floor-based installations are sprawling works that change over time. She juxtaposes natural materials such as crude oil and dirt with high-tech fiber optics. The scent of the oil, the substance that fueled the machine age, is noxious; the off-gasses announce a reflective pool of prehistoric fossils turned viscous, contained in a standing ceramic vessel. Chia seeds, which Goldberg often places on the surfaces of her sculptures and the floor around them, have become popular in recent years as a superfood. The newfound significance of the seeds as a healthy dietary supplement becomes part of Goldberg's narrative, which questions notions of progress by juxtaposing growth and entropy on varying scales of time. The works are site-specific in an institutional sense, as she conceives of the pieces in situ, spreading dirt on the walls and placing blocks of seeded sod on the floor. They also function as a reminder that the exhibition space is not neutral or static, but subject to environmental factors and flux. In Nina Canell's *Gum Drag* (2017), shown in the Nordic pavilion at **this year's Venice Biennale**, mastic gum (the resin of an evergreen tree) is cast in a long rectangular form around a vertical rod. Over the exhibition's duration, the gum bends and melts as it sinks to the floor, a process that, in effect, makes the temperature and gravity of the room visible.

ELABORATING ON Smithson's newly influential notions of entropy in art, **Gordon Matta-Clark** "cooked" materials in his works of the early 1970s to transform multiple ingredients into a new entity. (A little younger than Smithson, Matta-Clark installed one of these works, as a sort of homage, near the elder artist's loft.)⁶ To make the pieces, Matta-Clark mixed organic and nonorganic materials, combining saltwater algae and chocolate-flavored Yoo-hoo to produce an agar, a gelatinous substance that functioned as a medium for his bacterial cultures. He also made a soup of V-8, yeast, and a fungus found in Camembert cheese. He would pour these mixtures into trays where they fermented and dried, becoming what he called "skinlike fabrics of dormant life."⁷ He showed a grouping of these works in an installation called *Museum*, in a gallery exhibition in 1970, where the trays continued to grow mold, transforming over the course of the exhibition. Another version blew up in his studio for undetermined reasons.⁸ For Matta-Clark, the instability of the sculptures, the ingredients, and their behavior was key to the process. The trays that held the works hosted interactions not just between chemicals but also between the cultural connotations carried by the brand-name and generic substances.

In 2011 **Josh Kline** made the sculpture *Share the Health (Assorted Probiotic Hand Gels)*, which features three commercial hand-sanitizer pumps installed in gallery walls. They hold bacteria swabbed from a Uniqlo store, an iPad app developer, and a graphic designer. By putting together people and places in the same series, Kline wryly equates them as nodes for cultural associations. Removed from their original contexts and the visual coding of identity and place, the bacterial cultures grow and transform within the translucent pumps. Kline's microbial sculptures are similar to Matta-Clark's, but they were conceived in response to a more germophobic era. Kline often uses familiar products (or resin casts that look like the real thing): IV bags, blood sample vials, and the bottles for drinks that supposedly enhance physical and mental performance. But the forms are filled with substances ranging from pharmaceuticals to street drugs to health foods.

For a 2015 exhibition in Hong Kong, Kline created sculptures exploring the situation of migrant domestic workers in the city. These works contained materials such as Filipino pesos, Indonesian rupiah, floor cleaners, and remittance slips—materials evocative of monetary transactions and labor conditions in Southeast Asia. *Essence of Bitter Melon* (2015) is an IV bag filled with a green liquid described in the list of materials as Dettol floor cleaner infused with powdered Indonesian rupiah, bringing together a cleaning product with currency in a container used to pump fluids into the bloodstream.

Turning symbolic as well as chemical substances into a new stew, Kline comments on the synthetic and organic compounds regularly circulated, marketed, and ingested to augment human functions. The sanitizer pumps suggest defense against contaminations and the spread of illness, a message contradicted by the bacterial growth visible inside. Site specificity emerges through the places and types of people that Kline swabbed, creating both material narratives about and microbial portraits of his subjects. Information found in the works' titles and lists of materials, which identify substances that are not visually recognizable, point to their potential meanings. People, places, and other kinds of sites are seen not only as singular entities, but also as the microscopic multitudes they comprise. For instance, the parenthetical reference to probiotics in the title of *Share the Health (Assorted Probiotic Hand Gels)* also suggests—in addition to the germophobia evoked by the dispensers—the health craze for “good” bacteria marketed in yogurt and food supplements designed to overpower “bad” bacteria and create a healthier gut. The work prompts us to wonder what effect some bacteria from a Uniqlo store or the body of a graphic designer would have on our system if it were “shared” with ours.

In “Life Is Cheap,” Yi showed a bacterial agar like the kind Matta-Clark used. She swabbed the samples from locations in Manhattan’s Chinatown and Koreatown neighborhoods. “We have a mythology around ethnic smells, that certain people smell a certain way, but really the main factors are diet, environment, and an individual’s unique, genetic smell,” Yi said about the Guggenheim work. “A lot of that uniqueness has to do with how much bacteria you produce in your gut.”⁹ Where Matta-Clark was more concerned with the formal properties of putting bacteria on display—and the semiotic interplay of natural and synthetic substances—Kline and Yi, operating with more recent scientific information, remove microbes from their hosts to create abstract portraits of places and people. Broad concepts such as “women,” “iPad app developers,” and “Koreatown” become amorphous and abstracted, although the substances associated with them contain billions of pieces of highly specific information in their molecular makeup.

THE BEHAVIORS AND interactions of materials are essential to considering the meaning of these works. Political theorist Jane Bennett has argued that all matter is active, generating effects and influences beyond common human comprehension. Her work repositions humans within a more complex constellation of being. In her book *Vibrant Matter*, she writes, “If matter itself is lively, then not only is the difference between subjects and objects minimized, but the status of the shared materiality of all things is elevated.” Applying anthropologist Bruno Latour’s term “actant” to both living and nonliving entities, Bennett advocates new relationships grounded in collaboration between human bodies and other things.¹⁰ Her perspective has profound ramifications for concepts of identity. Who—or what—is the graphic designer if not a composite of cells, bacteria, and other microorganisms? This reconfigured and broadened definition of materiality is relevant to the works of Yi, Kline, Rosenkranz, Goldberg, and other artists whose vision is expansive enough to accommodate the microscopic, encompassing components like oxygen, chemical odors, and bacteria.

Bennett's work—and that of the artists discussed here—accompanies an increasing vernacular awareness of microorganisms and their role in human health and behavior. Sharing the recent discovery that “there are more bacteria in your gut than there are stars in our galaxy,” science writer Ed Yong explains how the microbiome of an animal is just as crucial to its biological composition and survival as its genome.¹¹ In addition to performing key functions such as building organs and immune systems, bacteria also connect many things through microbial relationships and symbiosis.¹² In her recent book *Staying with the Trouble*, scholar Donna J. Haraway also problematizes the hierarchy proposed by the traditional “host-symbiont” model, pointing out that all things involved in any situation are symbionts to each other.¹³

Accepting these propositions means renegotiating the boundaries between self and other, and understanding that the identity of a person or place is constituted in part by the bacteria that live therein. Kline's and Yi's microbial portraits offer new modes of representation that follow this logic. As Rosenkranz makes clear with her network of cat, parasite, human, and designer clothing in her works with civetone, we are only partially aware of the impact an organism such as a parasite might have on the perception of a scent and our social behaviors. The implications are far-reaching.

Philosophers and scientists broach these ideas in discourse and laboratories; artists do the same in their treatment of the site. People, places, and other kinds of sites are seen not only as singular entities, but also as the microscopic multitudes they comprise. Beyond the conceptual strategies of naming, as in Duchamp's early gesture, artists now allow sculpture to express the sensuousness of microscopic material, permitting them to have their own relationships with the viewer, fostering increasingly subtle acts of perception. The acknowledgment of known and unknown interactions beyond the visual or measurable brings to the fore previously overlooked actors and events. While artists need not try to fully represent or determine these processes, a well-formed suggestion can have a similar effect to that of a hallucinogen kicking in, when another layer of reality opens up and all senses are on high alert, bringing new details into focus.

To address the chemical compositions of the space, the materials, the human viewer, and other unannounced visitors, is to work against the controlled exhibition site and to challenge the static notion of representation. This means making art with a heightened awareness of the seen and unseen ecologies of any given site and the range of bodies, human and otherwise, that might come into contact with a work.

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Endnotes

1. Some examples include “Speculations on Anonymous Materials,” the 2013 exhibition curated by Susanne Pfeffer at the Kassel Fridericianum, and edited anthologies such as *Realism Materialism Art*, Berlin, Sternberg Press, 2015.
2. Aoife Rosenmeyer, “In the Studio: **Pamela Rosenkranz**,” *Art in America*, January 2015, p. 79.
3. Robert Smithson, “Entropy and the New Monuments,” 1966, in Jack Flam, ed., *Robert Smithson: The Collected Writings*, Berkeley, University of California Press, 1996, p. 11.

4. Rosalind Krauss, "Sculpture in the Expanded Field," *October* 8, Spring 1979, pp. 30–44.
5. Miwon Kwon, *One Place After Another: Site-Specific Art and Locational Identity*, Cambridge, Mass., MIT Press, 2002, p. 3.
6. Pamela M. Lee, *Object to Be Destroyed: The Work of Gordon Matta-Clark*, Cambridge, Mass., MIT Press, 2001, pp. 43–44.
7. Gordon Matta-Clark, quoted in Lee, p. 43.
8. Lee, p. 43.
9. Ross Simonini, "In the Studio: Anicka Yi," *Art in America*, April 2017, p. 105.
10. Jane Bennett, *Vibrant Matter: A Political Ecology of Things*, Durham, N.C., Duke University Press, 2010, p. 13.
11. Ed Yong, *I Contain Multitudes: The Microbes Within Us and a Grand View of Life*, New York, Harper Collins, 2016, p. 8.
12. *Ibid.*, pp. 23–25.
13. Donna J. Haraway, *Staying with the Trouble: Making Kin in the Chthulucene*, Durham, N.C., Duke University Press, 2016, p. 11.