UNDER ELECTRIC EYES

By Isabelle Kirkham-Lewitt

The futility of a home that serves nobody and needs no one.

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At seven o'clock the house wakes up. It prepares breakfast for no one to eat. It lights a cigar for no one to smoke. It draws a bath for no one to soak in. It reads a poem, but there is no one listening. "At ten o'clock the house begins to die."[1] Ray Bradbury's "There Will Come Soft Rains," tells the story of an automated house performing the routine of daily life in the frightening absence of human presence. It must be read as a warning. The death of the protagonist signals the futility of a home that serves nobody and needs no one. Bradbury's fiction, drenched in mechanical paranoia,[2] can be retold through Monsanto Chemical Company's prefabricated plastic House of the Future, developed at Massachusetts Institute of Technology, and installed at Disneyland in 1957. Symptomatic of the larger postwar culture (and artifice) of efficiency, customization, and expendability, the home was fashioned as a commodity, rendered as a technology, and placed within the cycle of planned obsolescence.[3] The House of the Future cannot be separated from the broader "research-industrial-academic" complex[4] that produced it—it internalized the technocratic ideology of the postwar landscape, and in doing so increased the distance between the home and its occupants: "inside new homes like these, and countless old homes, a revolution has quietly been taking place for the last 10 or 15 years...so quietly in fact, that it has been overlooked."[5] For the narrator in Monsanto's promotional video, the revolution is a revolution in plastics. It is a revolution carried out by plastic. The site of this quiet insurgency is postwar domesticity. It is a notion of domesticity that no longer requires the real presence of a human subject.

The House of the Future attempted to materialize Roland Barthes' premonition that "the world can be plasticized, even life itself."[6] In *Mythologies,* Barthes meditates on the collective myth of plastic. He writes, "more than a substance, plastic is the very idea of its infinite transformation...it is less a thing than the trace of movement."[7] Barthes is not concerned with the material reality of the substance, but the spectacle that surrounds the endless possibility of new form. It is the excessive variability of the material—its ability to become anything and everything—that is its greatest seduction. He attributes this to the elusive gap that the individual perceives between the sight of raw matter and the sight of infinite end products. For Barthes, plastic is "the first magical substance, which consents to be prosaic."[8] It is the tension between the ubiquity of plastic (its commonplaceness) and its pleasurable magic ("the stuff of alchemy") that enabled the material to enter into domestic life so seamlessly. Versatility was co-opted for commercial interests with the intention of managing the market. It comes as no surprise that Bakelite, the corporation behind the first synthetic material, trademarked the infinity sign as its corporate logo—manufacturing and naturalizing this imagination to the public.

"The following pages [images] contain critical architectural descriptions of current uses of plastics in housing...the problems typically faced in current small houses have been summarized mercifully, in the form of cartoons." Flooring in Monsanto Chemical Company's report. All image from: Monsanto Chemical Company Plastics Division. *Plastics in Housing* (Cambridge, MA: Department of Architecture, Massachusetts Institute of Technology, 1956).

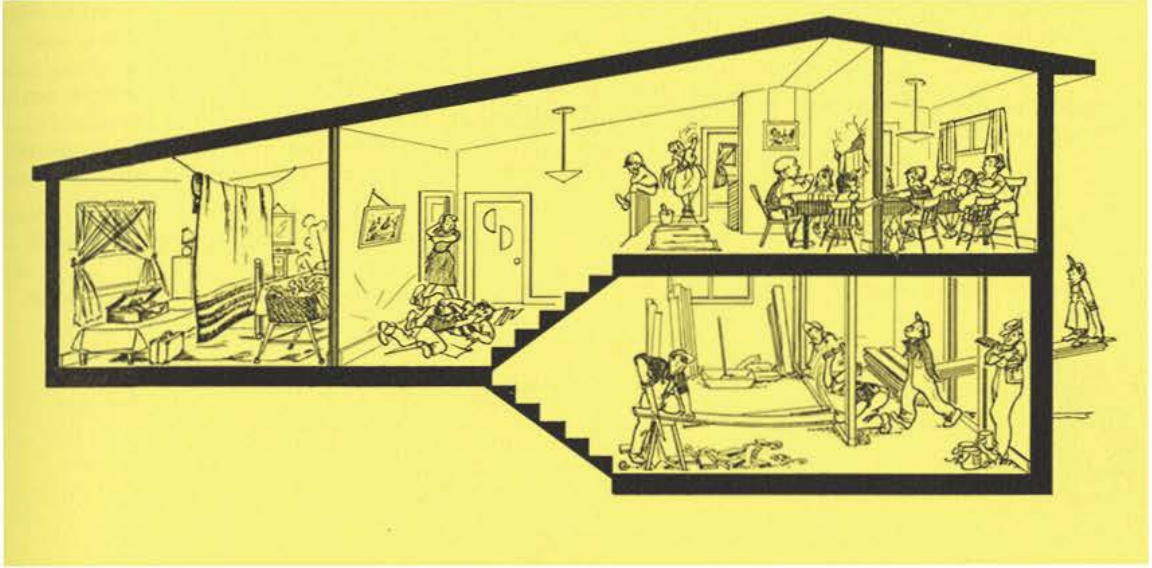
Annual production of synthetic materials exceeded six billion pounds by 1960—from 818 million pounds in 1945—as manufacturing shifted its focus away from wartime laboratories and toward the domestic sphere.[8] Baby boomers fantasized with View-Master stereoscopes, ate breakfast at Formica dinettes, went to school holding disposable Bic pens, and stored stuff in pastel Tupperware sets.[9] The idea of domesticity became inseparable from the appliances or goods produced outside of it. But more than a battleground for corporate interest, the synthetic home expressed the desires of a society steeped in the technological. It was born into the popular mythology that claimed science had won the war—produced by the same corporations that weaponized it. In 1954, Douglas Haskell, editor of *Architectural Forum*, wrote "in architecture, will atomic processes create a new plastic order? Tomorrow's structure may be typically all 'skin'... chemical, electronic, and radionic." [10] Confirming Haskell's speculation, the Building Research Board, an arm of the National Research Council, held the "Plastics in Building" conference in Washington, D.C., that same year. The conference brought together fifteen of the plastic industry's largest stakeholders—from The Dow Chemical Company to Bakelite—with the aim of "developing a technique to live in our environment in complete control of everything around us."[11] Comfort became a topic that demanded expertise, verifiability, and scientific study, and the home became a site to test the development of new materials. "Somewhere in the walls, relays clicked, memory tapes glided under electric eyes," writes Bradbury.[12]

Founded in 1901 by John Francis Queeny, Monsanto has been responsible for the development of a whole range of commercial drugs, plastics, and industrial chemicals—from saccharine (the artificial Aspartame sweetener) to Agent Orange and Dioxin. While today the company is considered the face of agricultural biotechnology, known primarily for its genetically modified organism (GMO) seeds, Monsanto and its associated chemical companies had engineered and commercialized more than twenty new synthetic materials by 1950 (it was not until 1980 that the company abandoned its plastics divisions, and reincorporated itself solely as an agricultural enterprise). [13] In the hopes of finding a new market for its plastic products, Monsanto initiated the three-year study at MIT's School of Architecture and Planning in 1953—under the direction of the company's plastics engineer Robert Whittier, and MIT architects Marvin Goody and Richard Hamilton—to secure a place for itself at the center of American life. The partnership, which culminated in a prototype of the House of the Future, must be understood as part of the corporation's effort to control and capitalize on the ubiquity and growth of plastic in the built environment.

Ceilings in Monsanto Chemical Company's report *Plastics in Housing*, 1956.

Elevated on a central pedestal with four wings cantilevered out from the center, the project reduced the home to a whitewashed curvilinear shell to match the all-plastic scenario of daily life on the interior. Monsanto championed the project for implementing the most outstanding advances in plastic technology, from ultrasonic dishwashing to microwave cooking to hands-free telephones and closed-circuit televisions—all of which were absorbed into the white smooth surfaces of the home under the guise of efficiency. At the center of the cruciform plan was the kitchen and "lavatory," the appliances of which were developed by The Kelvinator Division of American Motors (now known as Electrolux). Dubbed the "Atoms for Living," the kitchen was conceived as the site of complete control. Consisting of three self-regulating cold storage zones—one for traditional refrigeration, another for frozen products and a third for irradiated goods—the kitchen commanded itself. In Monsanto's film, the anonymous narrator proclaims, "Yes, living here could be fun! Press a button. This kitchen almost gets dinner ready by itself. But the fun part is making the most out of kitchen convenience and efficiency."[14] Monsanto envisioned a space that could operate with relative autonomy from its user—a home that could maintain itself. The individual's, specifically the housewife's, role was reduced to the pressing of a button. Her labor within the kitchen was closer to that of an operator: to start, to oversee and to manage the work performed by the machine around her. In this scenario, the home and its inhabitants were liberated from one another, free to perform the mindless activities of daily life separately. In line with the company's rhetoric, the home was not simply a laboratory to test the latest technologies but a technology itself: "all the hard work done by sound waves."[15]

The plastic industry did not stop at colonizing the interior. It latched onto the entire construction industry: "the well-known methods of product design are not enough, for in this case the real product is the whole building." [16] The entire home was conceived as a commodity, and placed within the throwaway economy of postwar production and consumption described by Reyner Banham. For an object to be consumed, it had to be expendable.[17] Banham attached architectural discourse to the logics of American commercialism epitomized by the automobile industry, arguing for an architecture that matched the impermanence of mass production—a system of social and technical obsolescence marked less by stagnation and durability than by change and expendability. The plastics industry fashioned the home as a "vehicle of popular desire" within the same "rugged rat-race of detail modifications and improvements" that marked the annual model change of the car.[18] Taking cues from the airplane and automobile industries, Goody and Hamilton designed a "unibody" or "monocoque" structural system made entirely of molded fiberglass. The design of the home as a piece of equipment was already being tested by Peter and Alison Smithson—who, in 1957, famously stated that the dream was no longer to create a house from distinct and standardized elements, but to construct a single object: "to change anything in it, would be like trying to get a bigger glove compartment for your car. That is, more complicated and more expensive than getting rid of the whole thing and buying another one."[19] In this way, Monsanto envisaged the home as a thing to be replaced rather than a place to grow into—sold as a thing of style, beholden to the same logic of future speculation that marked the next fashion trend.



Partitions in Monsanto Chemical Company's report *Plastics in Housing*, 1956.

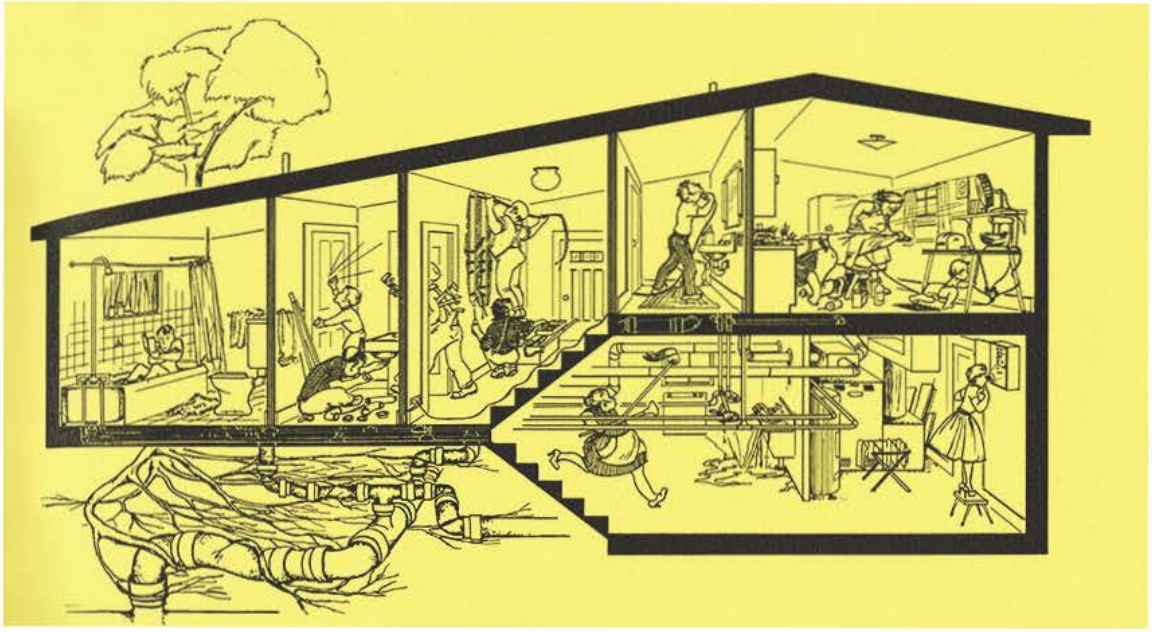
Monsanto's undertaking was predicated on the profitability of impermanence. The company's report, *Plastics in Housing,* produced alongside the House of the Future, argued for new economics of design that challenged the necessity of longevity: "there may be an economic and architectural advantage to be gained in our mobile society by designing building products for a shorter life."[20] Monsanto engaged in an all-out attack on the life span and solidity of home-building not only in terms of its physical construction, but also in terms of its emotional attachment: "tomorrow always holds the promise of something new and exciting."[20] The report turned to other models of living, such as vacation houses, and demountable military and emergency housing to legitimize a new temporality. This rhetoric of "tomorrow" also formed the basis for an argument about architectural representation very much in line with Banham's aesthetics of expendability. The Monsanto report begins with a detailed account on the current use of plastic in housing, and depicts existing construction techniques through a caricature of the split-level ranch house. In this supposedly antiquated architectural scene, cartoon-like individuals frantically enact the messiness of daily-life without plastic. In opposition, the plastic filled world of the future—that of surfaces, Buckminster Fuller domes, and bubbles—was grounded in symbolic iconographies: "Science Fiction, movies, earth-moving equipment, supersonic aircraft, racing cars, heraldry and a certain deep-seated mental disposition about the great outdoors and the kinship between technology and sex."[21] The House of the Future embraced a different set of symbolic images to match the accelerated technological environment that marked Banham's throwaway economy of the postwar era.

Futility was built into the very heart of the home. And that the home would suffer the same fate as Bradbury's house is evident in the form of Monsanto's project as a prototype or staged reality of the future. As a temporary and commodified space of display, future domesticity was positioned in relation to "Tomorrowland"—both in terms of the physical space in which Monsanto's house was installed at Disneyland and the symbolic space at work in the consumer's imagination. For the French philosopher, Louis Marin, "Tomorrowland" is a highly charged discursive space where ideology is played out:

> It consists principally of representations of the Future-as-Space, Einsteinian Time-Space, which realizes the harmonious synthesis of the two-dimensional world represented as time and space: time as historical, national past and space as strange, exotic primitivism. Tomorrowland is space as time, the universe captured by the American science and technology of today.[22]

Marin names Disneyland as a degenerate utopia: a place where fiction (in this case a fiction of the future) masks ideology as collective myth or fantasy. The company intended to capitalize on the House of the Future's supposed distance (a space set apart) from the politics of the contemporary city. However, the project was, in fact, a direct manifestation of it. Monsanto's House of the Future can be understood as the centerpiece of this

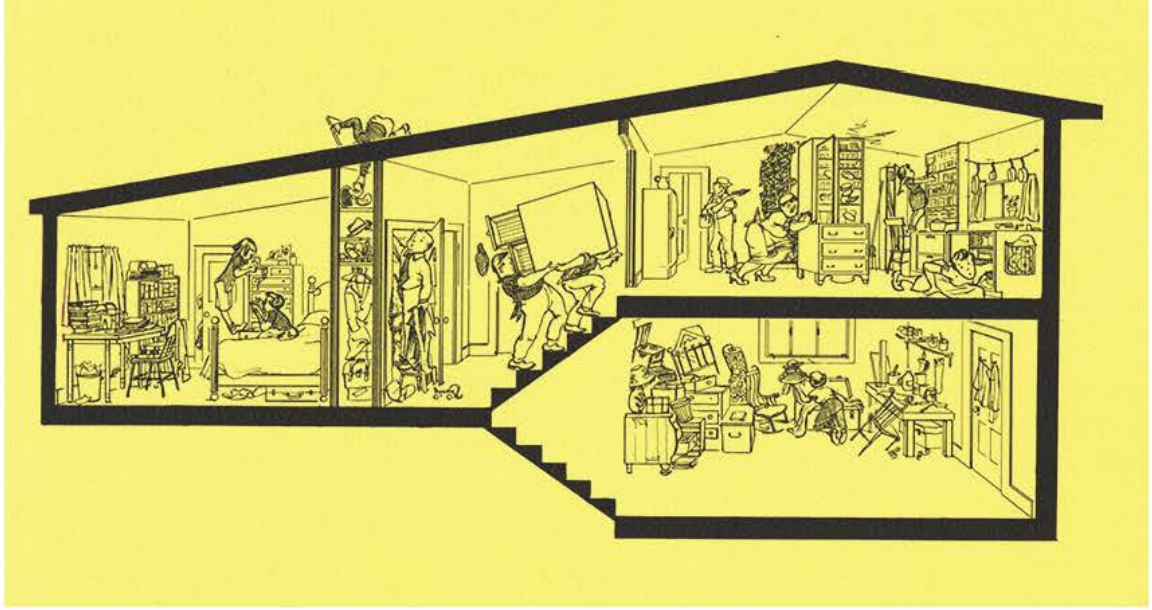
charade, concealing dominant American ideology and systems of value—scientific legitimization, defense, individualism, and so on—within a seemingly innocent representation of the future.



Mechanical Elements in Monsanto Chemical Company's report *Plastics in Housing*, 1956.

Cultural critic Dean MacCannell in his book *The Tourist* identifies a shift in modern capitalist societies away from a strictly material conception of value and toward a condition that manufactures and sells pure experience: "forms of social organization no longer emerged within the factories and offices as they once did during the period of mechanization and unionization. But rather, from a broadly based framework of leisure activities."[23] When read together, MacCannell and Marin elucidate the way in which social structure is actively involved in the construction of a mystification that supports social reality itself.[24] Not only are the fantasies associated with sites of leisure or spaces of escape fully saturated with the ideologies and realities they proclaim to be distinct from, but the participation of visitors or tourists in these spaces reenact and reinforce them. Disneyland, as an artificial space of leisure, produced a new relationship between the public and the home. The contemporary consumer was positioned as a tourist within the domestic sphere—as visitors they were alienated from the cultural production that they were an integral part of. Similarly, for Marin, individuals visiting Disneyland unconsciously enacted the myth of future domesticity: "captured, like a rat in a maze, [they] are alienated by their part without being aware of performing a part."[25]

MacCannell describes the way in which this alienation was supported by a "front" and "back" architecture. The front, which demarcated the space of performance, open and accessible to the audience, relied on the existence of a back, a closed and inaccessible space, in order to sustain the illusion.[25] However, Monsanto's project complicated any clean, spatial distance between these two realities. Instead, the two merged into a single inhabitable image of the future. Three years after the all-plastic house opened at Disneyland, Monsanto revised its original eight-page promotional pamphlet from *Monsanto Magazine* titled, "The Future Won't Wait." At the beginning of the pamphlet, Monsanto applauds the "six million volunteer researchers"—the six million tourists who toured the home at Disneyland—and their "12 million tramping feet" for having helped test the House of the Future. The American consumer was fully integrated into the space of research, each step representing the accumulation of data. In MacCannell's terms, the project became a deposit of value produced not by exploited labor, but by exploited leisure.[26] Monsanto's statement explicitly links experience to experiment, configuring the home as a laboratory where these two terms meet.



Storage & Furnishings in Monsanto Chemical Company's report *Plastics in Housing*, 1956.

"The Future Won't Wait" in many ways prophesizes the instability of the House of the Future as both a theoretical and architectural concept. By 1960, the "experimental concepts" produced by Monsanto three years earlier had already become corner-store realities.[27] A convincing image of the future required a certain perceived distance from the present—a distance that was increasingly difficult to achieve. As an aesthetic representation and technological object of the future, the home fell victim to the technocratic ideology that mass-produced it. As the future became the present, and the present quickly a thing of the past, the house was swept up into the constant flow of new objects. Behind the veneer of seamless matte finishes, in the view out toward the "snowcapped" tip of the Matterhorn, and running alongside its infinite contoured surfaces, was the watchful eye of the corporation carefully managing desire. Monsanto attempted to market a future. However, the imagination of future and the objects that comprised the image of it, were specifically Monsanto's. By rendering future domesticity as a fully synthetic and technological space, the future home assumed a similar managerial role over itself. In 1967, the House of the Future was demolished. "At ten o'clock the house began to die...the house tried to save itself, but too late. Somewhere, sighing, a pump shrugged to a stop." [28] [29]

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