In Adjacency: Architecture and the Waste Management Industry

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TOUCHING WASTE MANAGEMENT

Looking back on her show "Touch Sanitation" (1984), artist Mierle Ukeles writes of her desire to see art emerge out of infrastructure, a movement from inside infrastructure to the outside world of the public realm: "I dreamed that I could make public art grow from inside a public infrastructure system outward to the public and that the growing would affect both the inside as well as the outside".¹ She is referring in her remarks to the infrastructure of sanitation, an infrastructure that is famously resistant to contact with the public. Ukeles' dream of bringing the inner realm of workers, machines, and decomposing waste into contact with the outside world is shared by an increasing number of writers, anthropologists, artists and others, all of whom question the terms and consequences of its invisibility. In doing so, they maintain their status as outsiders, leveraging their unique disciplinary tools and commitments as a means of raising questions that are otherwise impossible to voice within the industry itself.

Architecture remains marginal to these concerns, but is closer to the workings of waste management than art or anthropology. After amendments to the Resource and Recovery Act in the early 1980s and burgeoning state level legislation, architects have been mobilized by the industry as service providers in the design and construction of waste management facilities. Unlike the work of writing and art, their ability to radically reinvent the nature of contact between industry and the public has been significantly compromised by its conditions of patronage. Requests For Proposals, competitions and other modes of solicitation demand that architecture be fundamentally vested in maintaining not only the invisibility of such facilities but also the invisibility of their consequences: harmful effects on workers, low income and minority communities and surrounding natural systems. Where involved, the profession's response to these consequences has been to leverage better design as a way of bringing more attention and visibility to the industry and its responsibilities to the public.

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It is easy to criticize efforts to design a better recycling facility or landfill as gloss on an otherwise troubled model of waste management. It is also easy to dismiss the industry as self serving and inherently exploitative. At its best, the alliance of these two fields underscores an earnest desire to accord greater dignity to an otherwise taken for granted aspect of daily life: the removal and disposal of society's garbage. Still, architecture's emplacement within the industry limits its ability to seek out systemic alternatives. Rather than debate the quantity or quality of architecture's role as a design corps for the industry, why not question the nature of its commitments altogether? Architecture has at its disposal an array of commitments to research and speculation that challenge the technological and managerial priorities of industry with questions about space, form and urbanism. By operating in adjacency to industry, architecture introduces a series of fundamental questions about the spatial logic of waste management and its social consequences, questions that this essay will explore with a number of examples.

ADJACENCY

There are few precedents for architectural research about waste management.² Instead, many of the industry's most potent observers and critics hail from the world of reportage and performance, including artistic practice, journalism and anthropology. They establish positions that are proximate to the workings and spaces of the waste industry, but to varying degrees preserve their independence from industry's forms of representation and knowledge production. They are adjacent with industry: they may or may not be in contact with it but are by definition "absent of anything of the same kind in between".³ Such a position stands in opposition to two primary crutches of engagement for architecture and the arts: models of participation and collaboration. As instruments for consensus building, participation and collaboration require their constituents to establish common commitments or goals.⁴ In contrast, a position of adjacency allows for the different institutional, intellectual and personal commitments of observer and observed to be at least partially if not wholly maintained.

Anthropologist Paul Rabinow suggests that this mutual autonomy allows for problems to emerge that would have otherwise been inadmissible or unimaginable if the researcher were to identify too much or attempt to exocitize the phenomena that she observes.⁵ Reflecting on his anthropological observation of scientific practices such as the human genome project, Rabinow proposes that disinterestedness is productive to the encounter between observer and observed. Objectivity derives from the anthropologist's lack of implication in molecular biology's world of journals, career paths and so forth, a disinterestedness in the very world that his research is interested in learning about. He adds that the anthropologist is not trained as a biologist and does not write "within the strictures of its editorial practices and constraints".⁶ She is not a molecular biologist, and does not claim to be either in role or voice. But she occupies a "zone of adjacency" to molecular biology in which, he suggests, "a king of objectivity can be made to function simply so as to pique the native's [scientist's] curiosity".⁷

In contrast to Rabinow's image of the anthropologist, many who engage with the waste industry marginalize observation or reject it altogether. Their willingness to embody information rather than merely represent it levels a significant challenge to the current state of architectural research. Rather than slip into the crutch of "too much information" that is customary for design research, they embrace the experimental effects of 'being there,' indeed an experimentation with what 'being there' looks like.⁸ At its most performative, much of this work leaves behind any pretense of observation. Still, it shares two primary consequences with observational research. Firstly, its practitioners perform the work of introducing novel and critical questions about space and labor by tracking and exposing the procedures of industry as a relative outsider. Secondly, their work produces effects and insights within the ambit of the work itself, not only for an external, receptive audience but also an internal one: workers, engineers, managers and so on. Such effects range from an educational experience of learning to experiences of wonder and reflection—think here of Rabinow's idea of the untimely force of 'piqued curiosity' within the space of a scientific laboratory.

Ukeles is herself an important reference point for testing the limits and possibilities of such a practice for the arts. She embraces a complicitous role in the industry's procedures, participating in the industry's forms of work and inviting the industry to participate in the codes and spaces of artistic labor. In her lifelong appointment as artist of the NYC Department of Sanitation, she has, among other things, shaken hands with and thanked every single sanitation worker in the Department and enlisted a tugboat captain to perform a garbage barge ballets (Touch Sanitation, 1977-80 and Marrying the Barges, 1984). Ukeles dons many of the codes and labors of sanitation workers, not to mention inhabit their garages, offices and landfills, shedding light on the work of maintenance and its spaces. Participation is here not a process of open-ended inclusion, as in democratic participation. Instead, participation is the strategic extension of responsibilities about maintenance and art to actors who are by definition independent from the commitments of the practice that they are participating in, as when the tugboat captain is invited to make art.

But are they in fact independent of such commitments? And is such independence even desirable? After all, one must first be invited in order to establish a position as an outsider within any industry, let alone waste management. Research is in this respect always making alliances in order to conduct its work, making concessions and complicities part and parcel of any engagement with industry. Furthermore, vulnerability to the alien commitments of industry may in fact be productive to reshaping the means and ends of observation. Learning from Ukeles, an empathic form of adjacency avoids moralistic tendencies to assert a position that is either for or against industry, allowing for speculation on both the negative and positive impacts of waste disposal. It also exploits intractable distinctions between engineering and the aesthetic and spatial priorities of architecture, allowing architectural sensibilities to raise heretofore unarticulated questions inside industry but also outside of it, in architecture itself.

INFRASTRUCTURAL RESEARCH

The following text and images describe a series of research projects that sought to test this ability to affect both the 'inside' of industry and the 'outside' of architectural research. Research itself was conducted in adjacency to the waste industry and its many interest groups, including advocacy groups, affected persons and government agencies. Research was conducted over the course of a yearlong seminar with students at the University at Buffalo in 2011-12, culminating in a gallery installation of three prototypes. Titled "Infrastructural Research," the seminar sought to move beyond prevailing forms of architectural research.⁹ More specifically, the seminar sought to complicate the dry, disembodied practice of information gathering and representation that is now part and parcel of teaching and practice. Looking instead to performance art, video and experimental social science as alternative models for spatial inquiry, students developed a series of techniques that rehearsed, tracked and performed modifications on already existing conventions of waste management. In doing so, the seminar displaced data based evidence gleaned from secondary sources in favor of actual interventions and observation of waste and its byproducts.

The scale and scope of research sites were inherently issue driven. Seminar participants were encouraged to formulate an expanded definition of their site, using the physical and spatial expression of a conflict rather than a predetermined place as a means for identifying the scale and boundaries of a given



'site.' As they established an area of focus for their research, students developed a series of proposals for new social rituals about waste disposal and its consequences. Each ritual was communicated through a series of assembly manuals that remain publicly available (www.assemblyoftrash.net), combining DIY instructions with information about the social and political context of each ritual. The manuals describe the different components of an intervention, linking 'how it works' to the social, environmental and spatial dilemmas that are implicated in it.

The rituals that follow propose a series of sustained actions which rethink the publicity of waste at its source of generation: everyday activities. Seen together, these acts comprise a new map of urban life, admitting garbage as a matter of social possibility rather than a matter of social decay. The agency of daily rituals of waste-making are deliberately opened up to much larger networks of economic and cultural circulation. Personal, individual acts such as backyard composting and waste disposal and are made visible to the experience of others.

Figure 1: Assembly Manual, Last Rites

Not, in its classic sanitary formulation as 'nuisances,' but instead as objects of interest or concern, as recent revisions of pragmatist politics would have it [10]. The prophylaxes of the compost bin, the trashcan and the window are broken open and dispersed throughout the city in order to make them available to users outside of the industry.

RITUALS

WINDOW LUNG & PARTICLE SCREEN

Typically undertaken by community and activist groups, this ritual introduces the act of air quality monitoring into the space of the home. Together with the Particle Screen, it intends to function as an active spatial threshold that is designed to monitor air quality around landfills. Though levels of pollution are heavily monitored at the landfill site through sensors and other instruments, such feedback is exclusive to the technicians and engineers who are in charge of the public's well-being. The two projects propose that feedback about the migration of pollution from landfills be communicated on a daily basis by activating surfaces that are familiar to daily life and which are likely to come into contact with landfill-infused air, including fences, billboards and windows. Early research for the project experimented with these thresholds out of the conviction that they were responsible not only to a political and technical program of measurement but also an aesthetics of communication, an uncanny supplement to the ebb and flow of daily life. For a ritual to be part of space and not a mere instrument, it had to be both present and strange.

The Window Lung uses a modified domestic window pane as a compartment for sampling outside air, to be installed in single family home or apartment builing. Instead of a flat surface of glass, one side of the surface is replaced with a PETG bubble that accommodates an air quality monitoring bag. The device learns from activist technologies such as the air quality monitoring bucket,¹¹ containing valves on the inside and outside of the bubble that allow the user to induce air into the bag after sucking air out of the cavity with a small off-the-shelf handheld vacuum. The sample bag is then removed from the compartment and sent to a lab in order to test for VOC's (Volatile Organic Compounds), a frequent pollutant that is generated by landfills. The Particle Screen replaces the window screen with a translucent vinyl stickyback surface that is deployed to attract potential particulate matter in the air, another dangerous airborne byproduct of landfills. The screen would be periodically removed and sent to a laboratory for analysis. Test results from either prototype would be available for advocacy efforts about the control, regulation and siting of landfills.

By placing monitoring in the hands of individuals, the project makes a de facto alliance with the air quality monitoring movement. In doing so, it inherits its methods and assumes much of its infrastructure. 'Citizen' air quality monitoring is most often conducted around shipping, manufacturing and petrochemical sites, involving teams of 'citizen-experts.' Expertise is cultivated by training people in the art of air quality monitoring by regional and national advocacy groups in order to assure the consistency and quality of samples. Their method involves the inhalation of air inside an adapted plastic restaurant storage bucket that is manufactured by an advocacy group in California. Once collected, air quality sample bags are sent to an independent laboratory for evaluation. Lab results can be used to lobby the EPA to use its more expensive monitoring equipment (a stationary trailer) in order to more accurately identify levels of pollution for use





as evidence in legal proceedings. The quality of the sample is thus inherently tied to the expertise of sampling.

Though the position of the project is somewhat antagonistic to the waste management industry, research for the project did not exclude engagement with the industry. Interviews were also conducted with the owner of a local waste management corporation and, separately, the engineer responsible for air and water quality monitoring for their landfill in Buffalo. He explained at length that air quality is not monitored continuously but is instead monitored periodically at specified 'control devices,' such as a methane flare. The amount of substances released into the air is calculated based on trends identified from measurements gleaned from these devices. This method of calculating air quality is, he explained an industry standard, not just for waste management, but for industry in general. Landfills are held to the same standards as a factory building, a strange and ultimately futile association given than unlike a factory, a landfill can never be shutdown in the even of an emergency. The regulation and measurement of air quality thus reinforces a spatial concept of the landfill as something that is discontinuous with the urban environment and temporally finite, an assumption made by regulatory agencies that our project sought to question.

LAST RITES

Last Rites envisages the public trash can as an interface. The project invites users (people throwing garbage into the trash can) to enter into a spontaneous act of performance; a 'ritual of wasting' as a counterpart to past consumption. Using a computer and webcam, the system monitors its immediate surroundings and detects the presence of a user/performer on approach. When activated, it starts a photobooth-like countdown timer, inviting the user to get ready.... The camera then snaps a picture, documenting the consumer's 'final act,' the send-off of the now dead object into its life beyond. What will this moment be like? How would the user feel? The transaction, formerly reflexive, painless, and quickly forgotten, is stretched temporally and spatially, as the user is now made aware of it through interactions with the camera and display screen. This curious funeral for the 'dead' object is documented as a 'last rite,' and the system accumulates and represents the moments as a collection of last rites, cycling through its archive until the next interruption occurs.

A last rite is a culturally and personally loaded ritual, and our research into the design of public trashcans illuminated their socially charged status. Quotidian variables like the height, shape and placement of a trashcan have important consequences for the nature of interaction with garbage in urban space. A cylindrical trashcan is more easily handled by workers, an industrial designer from the Bryant Park Corporation in NYC explained to us. Its shape is easier to carry than other shapes and is easier to line quickly with a bag than a rectangle or square. The proximity of cans to a street or building has further consequences: put it close to the street, and it accommodates pickup more easily. Side doors are more frequently used than in the past, in order to allow for easy and quick access by sanitation workers, but can also be a boon to scavengers. If access is too easy, he explained, it could encourage the prevalence of homeless people. In these and other ways, the trashcan is more than a benign interface. A trashcan is also an image of urban life. Its design and placement actively encourage particular kinds of use and users, and discourages others. Last Rites acknowledged these dilemmas but remained agnostic to them, eschewing problems of utility in favor of an exploration of its role as an interface—and archive.



NETWORKED URBAN COMPOSTING

This prototype links the individual, private act of bin composting with a potential new economy of urban compost exchange. Because American cities restrict large scale composting, Networked Urban Composting proposes to disperse composting among various sites of production, linking different scales of users and producers. This method would link backyard compost producers to potential users such as urban farmers and gardeners, encouraging the growth a network of exchange around decomposing matter. Seen in relation to the waste management industry, it seeks to redirect what would otherwise be landfilled into the space of the city.

Functionally, the modified compost bin accomplishes this by measuring the ripeness of compost and communicating it to an online network of users. A heatsensing probe transmits temperature levels to an RGB LED and a website that describes its state of decomposition to other composters or potential compost users. Compost would be available for exchange between not only backyard composters but other higher volume users as well, such as gardeners and farmers. Device assembly is intentionally DIY in character, emphasizing easy to learn, accessible technologies with significant online support such as an arduino board, solar panel, LED, wireless transmitter and off the shelf code such as Pachube.

Much like our provocations to air quality monitoring organizations, the project did not officially align itself with any one group or institution, though it did draw an unstated alliance with a burgeoning, grass roots movement about the conversion of underutilized land in Buffalo into space for gardening, farming and other community projects. Informants for this project were a neighborhood garden organization, a number of urban farmers and a local, independent composter. Research across this spectrum of organic waste producers and users illustrated a larger network of reciprocity already at play in the city. Organic feedstock is donated to composters, gardeners and farmers from a produce market, a Food Bank, an equestrian center, a medical center, a high profile urban farm and numerous other sources. All of this is completed in kind, suggesting the possibility of a larger gift economy for compost in the city. The project thus sought to connect more isolated composters with an already robust network of exchange in order to cultivate a culture of composting in the city. It imagined a platform for the city to manage its own waste through a decentralized network of reuse rather than through industry as such.

UNTIMELINESS

Rabinow imagines adjacency as a space of inquiry that is delightfully out of sync, even irritating to those it observes (or for our purposes, engages with), describing it as a space "of being behind or ahead. Belated or anticipatory. Out of sync. Too fast or too slow. Reluctant. Audacious. Annoying."¹² This is not the idea of a heroic anthropologist, nor, if translated faithfully to design research, the heroic idea of an architect-savior or problem solver. If anything, it is a position of problem-making or problematizing, as Rabinow might say. But is such a position tenable for design research? Design research is necessarily committed at minimum to a certain degree to problem solving for those who marshal and finance it. Its demands work against Rabinow's almost modernist notion of an uncanny, untimely rupture in the fabric of a research environment: a jarring transgression of curiosity apart from the sedimented commitments of those that one observes or engages.





Figure 4: Bin with device, *Networked Composting* Figure 5: Device detail, *Networked Composting* 5

The experiments above index this tension. Our resistance to direct collaboration and functionality for either industry or advocacy was at times troubling to our interlocutors. Interventions into air quality monitoring were more invested, for instance, in raising questions about expertise rather than assuring expertise through institution building, a strategy that is used in part to assure the collection of quality samples. This position of relative distance from the movement was of special concern to one prominent national level air quality activist, who communicated his disdain for the project as a waste of time for advocates such as himself and was concerned about inexpert sampling. Others were more interested in imagining greater usefulness for the projects. The aforementioned regional waste management corporation expressed interest in the composting sensor, and conveyed their willingness to adopt programs that portrayed them as a good neighbor and which offered them new markets. In contrast, the seminar resisted a proprietary understanding of the project (it was suggested repeatedly that we copyright the idea), instead seeing it as a provocation to industry as well as grassroots organizations and advocacy groups, among others.

By maintaining a varying degree of independence from industry and its critics, the experiments in this paper make a case for untimely questions about space, urbanism and aesthetics that may have no direct and immediate utility for either, but which have significant consequences for the way that society lives with waste as an urban problem. Each ritual was an infrastructure for creating questions and problems for gardeners, engineers and industrial designers that were born on the margins of these research subjects' own problems and motivations. The development of each prototype intended to create a conversation about their consequences and possibilities and was thus inherently speculative, remaining open to further articulation by those who would ultimately animate them: gardeners, engineers and others. The oblique relationship of these rituals to the demands of the waste management industry and its critics is thus its agency, allowing design speculation within the university to produce effects and, more specifically, social accountability in an industry that is famously resistant to being observed.

ENDNOTES

- 1. Tom Finkelpearl, *Dialogues in Public Art* (Cambridge: MIT Press, 2000), 322.
- Mira Engler's book remains the only comprehensive effort to analyze the architecture and urbanism of waste management facilities and landscapes. See: Mira Engler, *Designing America's Waste Landscapes* (Baltimore: Johns Hopkins University Press, 2004.
- "Adjacent," http://www.merriam-webster.com/dictionary/ adjacent.
- 4. Markus Miessen, *The Nightmare of Participation (Crossbench Praxis as Mode of Criticality)* (Berlin: Sternberg Press, 2011).
- Paul Rabinow, Marking Time: On The Anthropology of the Contemporary (Princeton: Princeton University Press), 2008. 49.
- 6. Rabinow, Marking Time, 47.
- 7. Rabinow, Marking Time, 47.
- My citation is a nod to Sylvia Lavin's incisive critique of the 2014 Venice Biennale. Sylvia Lavin, "Too Much Information," Art Forum (September 2014).
- 9. This research was conducted as part of the Reyner Banham Fellowship at the University at Buffalo, and I am grateful for the school's generous support.
- 10. See, for instance, Bruno Latour's many invocations of John Dewey and Walter Lippman's understanding of democracy.
- 11. For a well known example of the bucket as an activist imaginary, see: http://www.labucketbrigade.org/node?page=197
- 12. Rabinow, Marking Time, 39-40.



DISCIPLINES AND TERRITORIES-DISCIPLINARY CENTRISM

