RICE UNIVERSITY

Making Waste Public

By

Curt Gambetta

A THESIS SUBMITTED
IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE

Master of Architecture

APPROVED, THESIS COMMITTEE:

Fares el-Dahdah, Associate
Professor of Architecture,
Chair, Architecture

Eva Franch, Visiting Wortham
Fellow

Shirine Hamadeh, Assistant
Professor of Art History

HOUSTON, TEXAS
MAY 2009

UMI Number: 1466777

INFORMATION TO USERS

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleed-through, substandard margins, and improper alignment can adversely affect reproduction.
In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

UMI®

UMI Microform 1466777
Copyright 2009 by ProQuest LLC
All rights reserved. This microform edition is protected against unauthorized copying under Title 17, United States Code.

ProQuest LLC
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106-1346

ABSTRACT

This thesis questions the boundaries that define waste as a public or private dilemma, investigating these boundaries as productive sites for the imagination of social life. Learning from methods of processing, conveyance and disposal, I investigate a number of possible sites where the architectural mediates the life of a wasted object and the social life that is produced around an engagement with that object. Waste has largely been disappeared from the city and the senses by mechanisms of modern sanitation and architecture, moved to the urban periphery and concealed inside increasingly refined membranes of storage and movement. Though ruptures or discrepancies in the waste stream are often read as sign-posts of failure of a certain project of the modern city, I read these ruptures or excesses as productive irritants for working and reworking how we conceptualize public space. It is within the friction of overlapping claims made to an issue such as waste that public life emerges.

ACKNOWLEDGEMENTS

This project is an ongoing pursuit, this book being one stopover in what has already been a long route of travel. During my graduate studies, I have been lucky to have had the support and friendship of a remarkable community of friends within and beyond Rice. Education is never a solitary or purely institutional pursuit.

At Vassar College, Nicholas Adams, Glen Johnson, Himadeep Muppidi and Molly Nesbit laid some of the early groundwork for the questions about politics, architecture and creative practice that encircle this project. At Rice University, Tarek Elhaik has been a careful listener, informal advisor, and friend for a number of years. I imagine I will be working to address our discussions for many years to come. John Biln deserves a special thank you for encouraging me to continue on at Rice, and for asking me a lot of tough questions about research and architectural writing at a critical moment in my education. Sean Lally taught me crucial lessons about the process of design that continue to guide my work.

The criticism and encouragement of Chris Kelty was formative to early outlines of this project. His course on public culture raised many of the dilemmas about rethinking concepts such as public spheres or spaces that guide this thesis. Albert Pope was important to shaping the analytic of the project. Fares el-Dahdah challenged me constantly to approach the scope and context of my project in uncharted territory, and I am grateful for the productive skepticism and for allowing me room to make mistakes. Eva Franch's energy and critical outlook is unmatchable, and was responsible for setting the bar of conceptual rigor high. Shirine Hamadeh patiently counseled and engaged me throughout the development of this project, and was indelible to the outlook of my thesis work.

For their help with production of my thesis, Alberto Govela, Wendy Gilmartin, Judd Swanson, Jason Ouyang, and Lindsey Harkema all deserve a world of thank you's.

Though much of my fieldwork in Bangalore remains absent from this thesis, my work and residence in the city informs the spirit of this project. In Bangalore, Wilma Rodrigues at Saahas was generous in discussing her work and opening up her organization's resources to me. Clifton D'Rosario, Lalitha Kamath and Vinay Baindur all took considerable time to educate me on the politics of waste management in the city. Gayatri Kumarswamy and Malini Ghanathe accompanied me through much of my research in Bangalore, taking on translation not as a transaction or extraction but as a complicated back and forth exchange. Prem Chandarvarkar and Lata Mani asked critical questions near the end of my Bangalore fieldwork.

Lastly, a number of people have been there with me through the long haul of graduate school. Marina Nicollier has been a partner in both the absurd and the rational, and I wouldn't have made it through graduate school without knowing that someone else in the room shared my bizarre sense of humor. Without Ned Dodington, I would have no one to call me "toots." Julia Mandell and Wendy Gilmartin were purveyors of wisdom. Maria Del Mar Ceballos is my guardian angel. Peter Stanley, we survived. Everyone at Sarai in Delhi for their camaraderie and support over the years. For their lightness of heart and friendship: Arvind Narrain, Ann Gleig, Vinay Chandran, Vikram Doctor, Kevin Murtaugh, Bala Ramiah, Wesley Morgan, Jarrod Anderson, Diana Rooks, Megan Penmann, Annapurna Garimella, Siddharth Narrain, Caroline Loomis, Trinidad Hernandez and my comrades at ALF and Good As You. Mom, Dad and Kristen, you are as nuts as I am. How could I do any of this without you?

CONTENTS

Is Waste Public? / 2-19

From Exodus to Attachment / 21-38

Epilogue

Machine 1: Apartments of Continuous Digestion / 40-46

Machine 2: Materials Recovery Playground / 47-53

Machine 3: Monument of the Unwanted / 54-58

10 Objects / 59-71

Bibliography / 72-74

"My memory, sir, is like a garbage disposal."

Borges, *Funes the Memorius*

IS WASTE PUBLIC?

From Time Magazine July 21, 1975: *Under orders from his editors, Reporter Jay Gourley, 27, lifted five green plastic bags of refuse from in front of the Georgetown home of Nancy and Henry Kissinger and put them in the trunk of his 1968 Buick. Alert Secret Service agents and police promptly swooped down on him, and it took 21/2 hours of argument before Gourley convinced them that the trash by law constituted abandoned property and was there for the taking.*

What makes Henry Kissinger's trash "there for the taking"? Out of all likelihood, Kissinger, like many of us, would not have given any amount of thought to the significance of his act of throwing Marlboro's and a packaged New York Times in the garbage (both facts, among others, were disclosed to the tabloid-reading public). He would have assumed that the contents of waste that he and his wife produced were a private matter, immune from the kind of public revelation that Mr. Gourley conducted. To him, and to us, such an act would be a violation of privacy, an invasion into the matters of private life.

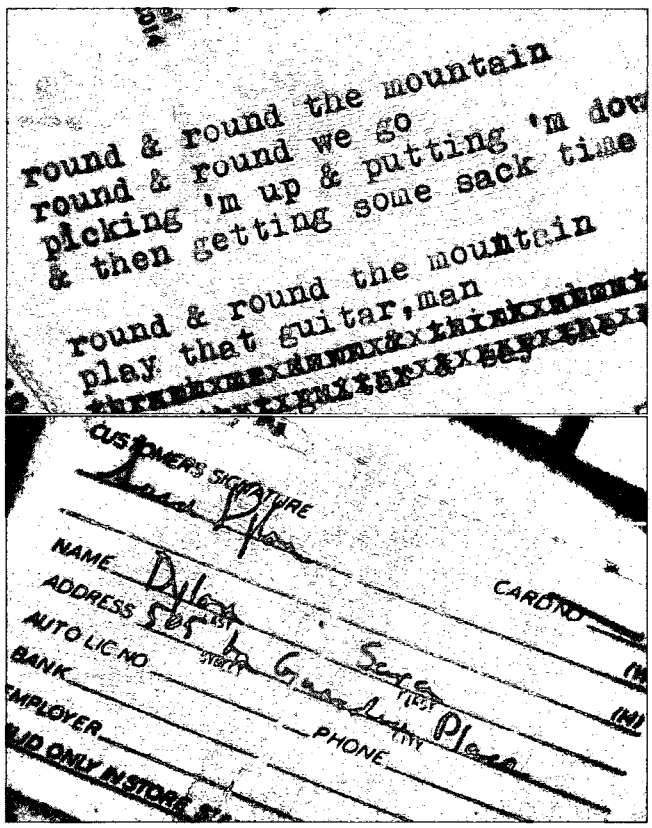
The conceptual boundary line drawn by the protagonists (the 'alert' secret service agents, Gourley, Mr. Kissinger and his wife) is one that runs between the private domain of the home and the public space of the street. There are other boundaries mapped onto the incident. The trash bag was an opaque green plastic, concealing its contents. The invisible contents, indicated only by their volume and possibly an unpleasant odor, would, had Gourley not intervened, been picked up by trash collectors and taken to rest and decompose in a landfill. Gourley's intervention was a transgression of the infrastructure designed for the efficient disappearance of Kissinger's trash.

Crisis emerges when the waste stream is shaken up: garbage workers strike, individuals do not obey their municipal duties, waste handling corporations improperly protect the public from toxic runoff from landfills, etc. In the case of the journalist foraging through Kissinger's waste articles, the infrastructure of invisibility was violated, opening a wound on an otherwise seamless technical process in which the private matters contained in trash bags remain concealed from public view. Though the isomorphism of privacy and invisibility is accorded considerable stability by the actors in this short parable, the violation encodes a fragility in how waste is determined to be a public or private matter. The violation produces contestation, disagreement and negotiation, demanding that the contours of public life be reworked constantly. The responsibilities of the state, various waste management corporations, 'civil society' and the individual are as a result also unstable.[1]

From curbside tussles to large scale social movements such as recycling, the politics of garbage turns around the question: is trash public? The question is not so much explicitly represented as it is one that haunts debates over privacy, placement and control of garbage. If responsibility has been primarily located in either a failure to act (the failure of the citizen to fulfill her responsibilities) or a knowing violation, I suggest responsibility turn around notions of public life that are already at work in the political landscape of the city rather than a prior notions of citizenship. Learning from the political writings of John Dewey, I will conduct an

AJ Weberman, sifting through trash

Bob Dylan lyrics discovered in his trash



archaeology of the political formations that have erupted from violations in the waste stream, arguing that we see the friction of the violation as a productive force in the making of public life.

From causes to consequences

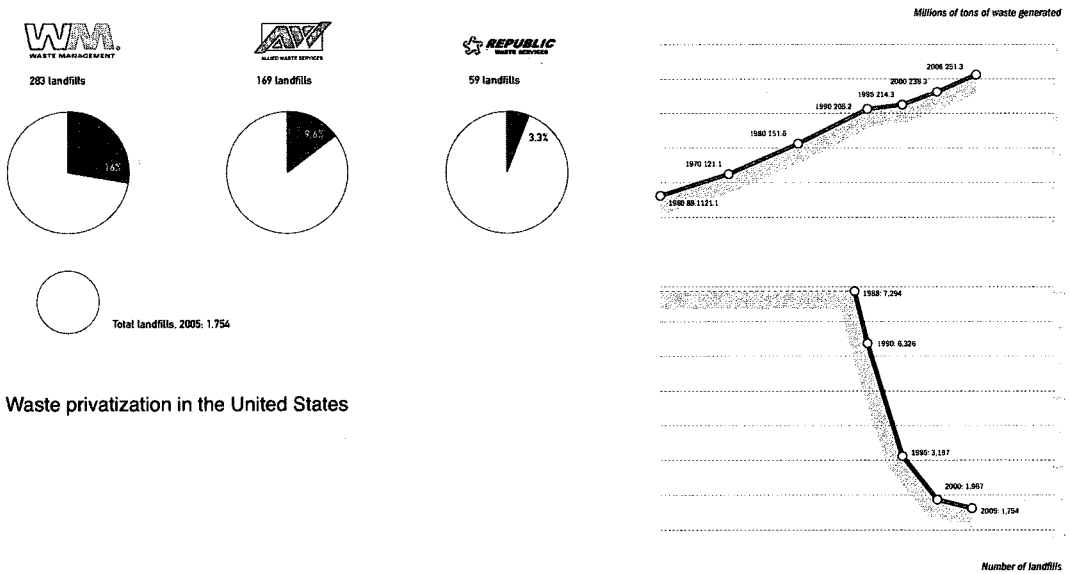
The opposition set up in this minor controversy between public space and private life is familiar to the discourse of modern political theory. Susan Gall observes that the organization of the social around distinct spheres linked to concepts about public and private is evident in both republican and liberal political thought, a problem that emerged in the 19th century. These traditions differ, she argues, in "the value and location they assign to the public good as opposed to private interest."[2] Nonetheless, these traditions "agree on the centrality of the opposition."[3] It is difficult to escape the dualities associated with publicness and privacy, including "community vs. individual, rationality vs. sentiment, money vs. love, solidarity vs. self interest."[4] Contemporary narratives of contestation over expectations of privacy in garbage are more often than not characterized by these oppositions.

For Kissinger's secret service agents and for most Americans, the political concern over trash is one of contamination or sovereignty of these oppositions, or measuring the encroachment of the public sphere into the private, and vice versa. Habermas too registers the importance of sovereignty of the public sphere, though the sovereignty of the public sphere is not from the private sphere per se, but instead from the state itself. He is in fact critical of this opposition between public and private. The separation, he writes, "of the private from the public realm [in the nineteenth century] obstructed... what the idea of the bourgeois public sphere promised."[5] The private, he argues, is the ground from which public organizes, debates and challenges the authority of political domination. To insulate private life and diminish its scale is to extinguish its political function.

The political expectation placed by Habermas on the public sphere is causalist: the public sphere creates conditions for democracy to unfold. If its efficacy has been eroded, the growing separation of public and private being one such symptom, then democratic politics are compromised. In the twentieth century, it is the rise of the welfare state and large enterprise which further compromises the efficacy of the public sphere as a democratic force. The welfare state, through social legislation and increased regulation of society and economy, took over many of the matters previously restricted to private life and law. The corporation in the mid 20th century further assumed the role of the state and family, tending to the functions previously managed in the private sphere.

The experience of waste management largely mirrors these 'structural' shifts towards centralization, indicated by the transference of responsibilities for disposing and sorting of waste from private citizens to the state and ultimately large corporations. Consequently, the politics of waste in the contemporary is conducted through violations, regulations and responsibilities, such that the 'collective housekeeping' of society's waste is cast as a problem of management

One of first sanitary landfills, located in Fresno, today signalled only by pipes that release gas



Waste privatization in the United States

by individuals and by both the state and, now more than ever, large private corporations such as Waste Management and BFI International.

The problem articulated by critical perspectives on the politics of the waste stream is one of participation and of a desire to demystify for the public at large its infrastructure of secrecy. If the public were to know more and take on more individual responsibility in the management of waste, then, it is assumed, the problem of waste management will be solved. But what is the problem exactly? The garbage crisis of the 1980's and 1990's may have been no crisis at all, depending on who is writing about it. Recycling is a vital act to some, and wasteful to others. The issues are many and complex. Few can understand with any depth the web of interrelations, networks of power and environmental consequences that waste management presents us. Public participation is occasionally requested by the municipal and national government through recycling programs and initiatives such as Keep America Beautiful, but the problem as such is already laid out and managed by engineers, regulatory bodies like the EPA, and by other concerned 'official' institutions.

As an individual producer of waste, I cannot tell you what the issue is surrounding the management of trash. Nor could I tell you with any confidence what the environmental and social consequences are of each act of waste production I make. They are simply too complex. Experts and representatives make decisions on my behalf about what they consider to be in the public's best interest. The content of politics, in this case the consequences of trash-making, remain an issue of administrative and technical expertise.

John Dewey, writing in the 1920's, recognizes the problem of knowledge in modern democracy: "No one can take into account all the consequences of the acts he performs. It is a matter for him, as a rule, to limit his attention and foresight to matters which, as we say, are distinctively his own business."[6] Dewey's perspective should not be misconstrued as a naïve provincialism or libertarianism. Given the ubiquity of media and the ease of travel, we are constantly surrounded by new issues that concern us. 'Omnicompetence' of these issues is impossible. But, both Dewey and Walter Lippman argue, this fact does not preclude the exercise of democratic politics. Nor is the work of democracy dependent on the quality of information, as Noortje Marres has argued in her discussion of Dewey and Lippman.[7] So, complexity of problems is not a roadblock to democratic politics. Complex entanglements, she argues, "actually enable public involvement in politics", according to Dewey and Lippman.[8]

The actions of the public do not 'cause' democratic politics to unfold. Consequences, or issues, call a public into being. In relation to the politics of garbage, this relationship cannot be understated. Dewey writes: "if is found that the consequences of conversation extend beyond the two directly concerned, that they affect the welfare of many others, the act acquires a public capacity..."[9] Too long, Dewey argues, politics has been construed in political philosophy as a concern with causal agency, rather than with the unintended consequences of action in the world[10]. Garbage is a public issue when the consequences of a transaction or action of waste making extend beyond the transaction between

the producer of garbage and the waste handler. Seen this way, garbage can become entangled with other issues, and call forth publics organized around the content of waste politics. The struggle for this politics, though not explicit as a desire, haunts the examples I will discuss. Each turns around the question: is trash public? Are the consequences of its production and management confined to the actors involved, or do these consequences affect the welfare of others? Application of the question is designed to provoke speculation over a number of settings in which ideas about public space and private ownership play out. How effectively do Dewey's concepts of politics in democracy play out against the dilemmas raised by trash making?

'Curbside recycling'

Though the reporter's transgression was resolved at the curbside, another such incident of a supposed violation of privacy found its way to the US Supreme Court in 1988. Jenny Stracner, an investigator in the Laguna Beach Police department, believed, like the reporter, that the trash produced by her subject of investigation was fair game to be picked up and sorted through. Stracner was tipped off that Mr. Greenwood was dealing drugs. Stracner ordered the local trash collector to hand over a number of his trash bags to the police. Drugs were found in Mr. Greenwood's trash, a fact that was then used by the police to issue a warrant to search Greenwood's home. The California Superior Court dismissed charges brought against Greenwood on the grounds of warrantless search of his trash, a violation of the US and California Constitutions. The decision made by the California Superior Court was grounded in an expectation of privacy by Greenwood over his trash.

The Supreme Court struck down this decision, arguing that there was no reasonable expectation of privacy: "An expectation of privacy does not give rise to Fourth Amendment protection...unless society is prepared to accept that expectation as objectively reasonable."[11] The argument is insightful. They continue:

> Here, we conclude that respondents exposed their garbage to the public sufficiently to defeat their claim to Fourth Amendment protection. It is common knowledge that plastic garbage bags left on or at the side of a public street are readily accessible to animals, children, scavengers, snoops, and other members of the public. Moreover, respondents placed their refuse at the curb for the express purpose of conveying it to a third party, the trash collector, who might himself have sorted through respondents' trash or permitted others, such as the police, to do so.[12]

Greenwood placed his garbage beyond the curtilage of the home, "exposing" his garbage to the public. The curtilage of the home is defined as the boundary of enclosure of a person's property. For most US homeowners, this threshold

is defined no longer by an actual device of enclosure (ie: fence) but is instead established as an invisible boundary, demarcated by ownership. Still, the line is drawn between private/home and public/street. Once they are discarded across the line of curtilage, the court suggests that they are abandoned and accessible to "animals, children, scavengers [and] snoops."[13]

The dissenting opinion responded predictably, arguing there was indeed an expectation on the part of citizens that the clues to one's "financial and professional status, political affiliations and inclinations, private thoughts, personal relationships, and romantic interests"[14] will remain private, even if they hand over their waste to a third party trash collector. Why, Justice Brennan asked, shouldn't trash be thought of like the contents of a desk drawer or a briefcase, both of which are protected from unlawful search? There is an asymptotic privacy of waste at work here. Where does garbage stop being private, and become a matter of public concern or view? The curbside? The garbage truck? The landfill?

Though Dewey argues that political boundaries are constructed wherever "there is a barrier to the spread of associated behavior,"[15] his argument in The Public and its Problems contradicts such a geographic limitation. Given what we know now about the social and economic interconnections drawn through globalization, it is difficult draw such a boundary line around the spread of consequences, particularly when the consequences are associated with an environmental concern such as garbage. One need only rewind to the 1980's to understand this. The iconic image of the so called 'garbage crisis' was the roaming barge of New York municipal waste, the *Mobro*. Martin Melosi writes of the incident:

> On March 22, 1987, the fully loaded garbage barge *Mobro* left Islip, New York, looking for a landfill that would take its disagreeable cargo. Over a period of two months, five states (North Carolina, Louisiana, Alabama, Mississippi, and Florida) and three countries (Mexico, Belize, and the Bahamas) banned the barge from unloading. Reluctantly, the captain turned the *Mobro* toward home [...] Ultimately, and somewhat ironically, it was allowed to dump the 3,100 tons of waste back where it started.[16]

\Municipal solid waste is transported in a global and interstate economy of handling, processing and storage. The environmental consequences of waste produced inside the home, office or restaurant reach far beyond these private settings, calling into question the notion that the boundaries of public concern stop at the line of curtilage. It is likely that, as the movement of waste is increasingly internationalized, and barges such as the *Mobro* deliver their goods to global customers, the public of garbage will be a public of many distant strangers. The implication underlying this multi-scalar ambiguity of limits is that the national border, bodies of water, mountains are subsidiary to the boundaries of objects of concern.

In arguing for and against the *reasonable* and *objective* expectation of

privacy in California v. Greenwood, the Supreme Court relied in part on what it felt were commonly held understandings of the privacy of waste. How the concepts of privacy and public space were used was nearly as important as legal precedent, so much so that even the trivial Kissinger incident found its way into the opinion of the court. Everyday applications of these concepts are equally contested. One Houston blogger wrote in 2006 on *Metroblogging Houston* of how he left a pair of old office chairs at the curbside on Friday evening, expecting them to be picked up with the trash on Monday. To his surprise, the chairs were gone by the next morning. 'What kind of people", he wrote, "go around looking for stray office chairs in the middle of the night?"[17] The first comment curtly responded: "We call this 'curbside recycling'. Enjoy."[18] The exchange incited a discussion between blogging Houstonians over the question: is the act of picking up another's garbage considered stealing? To call such an act stealing suggests that the trash is still held in private ownership.

'Curbside recycling' was considered by the first blogger to be a violation of privacy, while others felt that the chairs were ripe for the picking. For the first blogger, trash was considered a private matter whose consequences were confined to the transaction between trash collector and trash maker. For other respondents, the observation was one of cause and effect: the act of placing garbage on the street led understandably to a normative response b y others: it was collected. It was public by virtue of being put there without any mark of ownership. A third interpretation was more Deweyan: one respondent typed at length of how she came to understand the workings of the McCarty Road landfill in Houston and henceforth began "harvesting" from people's garbage heaps second hand items.[19] By identifying the act under debate with the landfill, she is suggesting that abandoning the furniture implicates the act in a chain of consequences much bigger than itself.

The conceptual boundaries drawn out here are unstable and are difficult to remove from their deployment in a cultural field. Susan Gall argues that in socialist Hungary, a very different map of public/private relations was produced in relation to the state than that of the bourgeois West. The aforementioned distinction between public and private was targeted by East Central European communist parties by eliminating, Gall explains, "the 'private' through the extension of state control into activities, spaces, and relations deemed 'private.'"[20] These highly intrusive efforts on the part of the elite running the state created an atmosphere of us vs. them, where "private activities, spaces, and times were understood by the people throughout the region as 'ours' and not the state's."[21] The implications of such a relationship played out in daily practice, such as in the case of the factory worker and a stolen desk, documented by Janine Wedel:

> An employee took a desk from a state-owned factory, intending to resell it. He left the desk in a truck near his apartment building until it could be delivered to the intended purchasers. But to his dismay, it disappeared.[22]

Abandoned Couches

Thumbnails Detail 2 comments

I started to notice couches abandoned on roadsides all over LA. Now I take pictures of them.

207 photos | 1,178 views

Items are from between 11 Jun 2005 & 08 Sep 2008.

The factory worker thought nothing of taking from the state, but, Gall notes, felt violated by the stranger who removed the desk from the truck. The factory worker saw this 'theft' as a "violation of the moral injunction not to steal from 'our own,'"[23] that is, from those who were not the rulers of the state. An opposition between what is public and private survived, but was 'nested' in different ways in the conceptual maps of both the factory worker and the person who took the desk from the truck. She explains further that "what was private for [the factory worker] was subdivided by another person to create a 'public' in which the desk was again available for righteous taking."[24]

The familiar threshold of the curbside is supplanted with a more difficult scenario of collective privacy. In the mind of the factory worker, the act of stealing was a violation of this collective privacy. For the thief, the act was not theft at all, and was instead a retooling of the desk as public and was thus fair to take. Public ownership is defined by these actors as that which is not private, such that the violation is registered when this positive private boundary is transgressed[25]. The question of trash being public or not results in the same action as in the Houston incident: the article under dispute was taken. One could produce a similar reading of embedded publicity in another Houston blog entry: "one man's trash is another man's treasure."[26] Like the Houston incident, the debate turned on whether or not the act was one of stealing or one of taking from an article that was deemed public. In both cases, the actors seem to agree: what is public is for the taking! What differentiates these experiences is that what is public in Hungary is identified with the state, whereas for the Houston blogger the waste they produced was identified with its placement beyond the line of curtilage. In light of Gall's argument, whether or not a decision or act enters into a public capacity impinges on where the boundaries of entangled consequences are delineated. Are they drawn around the property line or around the state itself? The nestings and contestations over the meaning suggest both the difficulty of the question and the necessity of its asking if trash is to be made public in Deweyan terms, particularly in post socialist contexts like Eastern Europe or South Asia. The question of whether or not trash is public in these contexts cannot be removed from the remapping of public and private concepts by the socialist state.

The problem of the individual

The interpretations on the part of the actors involved were largely concerned with the actions and interrelations between individuals, when in fact the consequences of many of these actions extended beyond the limits of these transactions. Dewey proposes that a problem is public when its consequences extend beyond those actors immediately engaged in it.[27] If we take these instances as exemplary, then Dewey's proposition remains a potentiality. It may haunt everyday practices, but is more often than not articulated around the

exchanges of individuals rather than chains of association.

It is ironic that in waste management the individual emerged just as systems of waste management were phasing out the actual control of individuals over their waste. This can in part be attributed to the framing of waste as a technical problem of public health. Hibbert Winslow Hill observed in 1916: "The old public health was concerned with the environment; the new is concerned with the individual. The old sought the sources of infectious disease in the surroundings of man; the new finds them in man himself."[28] In sanitary discourse, mere presence of trash was the source of unwanted effects such as disease. Bacteriology introduced contagionism as a concept about waste and filth in general, so that it was germs, not the material of waste, that was determined to be the source of disease. Man himself become the object of concern, and waste evolved into a largely technical matter. To this day, management of garbage remains an immensely technical problem of nullifying harmful contact with the waste stream.

In the nineteenth century American city, control over municipal waste was a largely individual matter. Heather Rogers explains that "cart men were hired by businesses and individual householders to regularly collect wastes."[29] Public refuse collection was, even by the end of the 19th century, still in its nascent stages. Martin Melosi writes: "Fewer than one quarter of all cities surveyed in 1880 had a public collection system for garbage and ashes..."[30] Following the creation of publicly managed municipal waste management systems in the first half of the twentieth century, the period following the erosion of the welfare state in the 1970's witnessed the shift towards the promotion of market based policy instruments for handling environmental issues.[31] Matthew Gandy has argued that this shift translated to a general movement of responsibility over environmental issues to the individual citizen. At the same time that waste management was being densified and concentrated—the number of landfills, for instance, decreased from 16,000 in 1979 to 5500 in 1988—the individual collection of waste was being cultivated in programs such as curbside recycling. Once again, the individual householder would manage their own sorting of waste by separating trash articles for recycling. This physical engagement had largely disappeared in the twentieth century, as earlier practices of recycling and waste sorting were phased out in favor of combined waste collection (where everything is thrown together into one trash bin).

Columnist John Tierney raised the ire of environmentalists in 1996 by publicly questioning the necessity of recycling. His column "Recycling is Garbage"[32] argued that the environmental and economic benefits of recycling were overblown. His narrative begins in a third grade classroom in New York City, where students are learning to appreciate the consequences of the waste they produce. After asking her students to collect litter from around their school campus, the science teacher dumped the contents of their collection bags onto the classroom floor. Student response ranged from curiosity to disgust at the smell and appearance of others' garbage. After emptying the last bag, the science teacher pointed to the waste pile and said: "We've been learning about the need

NO TO LANDFILL
DON'T DUMP ON
OUR DOORSTEP

LANDFILL
STINKS!

to reduce, reuse and recycle... How does all this make you feel?" The students responded with a kiddish "Baaaad." The activity, one not unfamiliar to me as a one-time primary student, was designed to unmask the secrecy enveloping the waste stream. Its efforts mirror countless public education programs dedicated to less wasteful living and recycling initiatives. Of course, the teacher has set up the lesson with the conclusion already drawn. The student's conclusion is neither organic nor spontaneous.

Tierney uses the classroom lesson to critique the garbage crisis that in large part gave birth to the recycling movement. Americans, he argues, became "racked with garbage guilt."[33] Tierney's culprits? The media and the EPA, whose incessant sensational reporting (Newsweek ran a story entitled "Buried Alive", a story which featured the *Mobro*) and welfare-esque interventionism made recycling a major issue of public concern. I would like to call attention to Tierney's theorizing on the environmental movement. The assumptions embedded therein are used to critique the recycling establishment, but share with this movement an investment in the individual as a necessary figure in environmental politics. In their reliance on the empowerment and responsibility of individuals for their own waste, Tierney and his pro-recycling opponents share the assumption that waste is a private matter.

True to his faith in a politics of individuals, Tierney investigates the philosophical origins of the modern environmental movement in the parable of "The Tragedy of the Commons" by ecologist Garrett Hardin. In this story, the commons of the village become overrun with cattle, and as a result, the commons are destroyed. There is no *incentive* to cap the size of your herd, to cattle owners overpopulate the pastures. Tierney frames the problem as individuals acting recklessly out of rational self-interest. Tierney's conclusion is worth quoting at length, as it provides insight into commonly held critiques of environmentalism and waste management:

> The Tragedy of the Dump is a simple problem [...] resolved with the approach [of] private responsibility. Your trash is already your private property. You should be responsible for getting rid of it. You should have to pay to get rid of it—and you should pay whatever price it takes to insure that your garbage doesn't cause environmental problems for anyone else.[34]

Tierney's message is clear: you, the individual, are responsible for the trash you make. It is your private property and your responsibility to pay for. His demand is for free market waste management and government interventions such as recycling programs. The government will no longer play the role of housekeeper.

Tierney's theory rests on the centrality of the individual, a figure that Dewey knows well. "Singular things act, but they act together,"[35] he writes. Politics is forged through the association of individuals, individuals who recognize that their actions have consequences beyond those participating in the decision or action. Participation in politics is thus not the sum total of participating

individuals (Tierney's notion of responsibility), but is instead constituted through the perception of consequences of actions. If there is no perception of the object or content of politics and its consequences, we are confined to democratic fictions. Dewey is as much a philosopher of the individual as he is a theorist of association. That the individual can do all that he or she is asked to by theorists of individualism is impossible, he suggests. Who can function in the world free from any associations? The responsibility is too great.

Though Dewey does not write about waste management, his reflections on the career of individualism bear an uncanny resemblance to the structural transformation that unfolded in the experience of waste making. Dewey writes of the 'ineptitude' of the theory of the individual:

> ...the theory of an individual possessed of desires and claims and endued with foresight and prudence and love of bettering himself was framed at just the time when the individual was counting for less in the direction of social affairs, at a time when mechanical forces and vast impersonal organizations were determining the frame of things.[36]

The desire for the individual as a locus of action emerged in waste management, as he did in politics in general, at the same time that his control over the waste stream was being disappeared by large scale organizations.

In American cities in the 19th century, the entry of these large scale organizations such as municipal bodies was demanded in large part because individuals could no longer manage the amount of waste that was being produced and consumed. Civil society organizations, many of them constituted by women, formed to demand the proper management of an ubiquitous garbage crisis that was both sensible and real in the industrial metropolis. In New York City, garbage was everywhere, from the streets to the shores of the Hudson. citizen organizations, including the Ladies Health Protective Organization in New York City (1884) and the Woman's City Club in Chicago, called for public refuse collection. The City Club argued explicitly for the municipal, rather than contracted, management of waste,[37] in opposition to male support for market driven waste management. The grounds of these demands were largely aesthetic, and were framed as a duty towards public 'housekeeping.'[38] These organizations were constructed around an issue, and were influential in the genesis of public refuse management. Individual women were called to participate, but their political force was not by mere assembly and deliberation alone. In other words, the entry into the political was not entirely via an entry into a proper political space or spatialized public sphere (a public sphere which one can enter or leave[39]), a move we know to be contingent with an often violent disavowal of concerns specific to an individual or community.[40] Assembly turned in a sustained manner around the content of the issue: garbage as a matter of public concern.

I suspect that a closer examination of this history may illustrate that movements such as this were inextricable from the claims made to normative

Crisis of the industrial city: Chicago, late nineteenth century

Bleeker Street, New York City, before and after street cleaning

modes of citizenship or representative democracy. Politics is messy business, and we can only look for opening or 'avenues.' I do not wish to argue away representative democracy, but rather to argue that the tools of representative democracy are implicated in deeper networks of negotiation that do not always fit with powerful (and exclusionary) concepts of propriety and 'participation' associated with citizenship[41]. Understanding this complex web of negotiations and contestations that violations in the waste stream produce illuminates a productive field of working through conceptual boundaries drawn between public and private. There is indeed a pedagogical bent to Dewey's political archaeology. In what ways has architecture, that gatekeeper to 'public space,' conceptualized itself as part of this working-through around the object of waste? If Dewey and others attempt to remove from our understanding of the public an a priori space that one enters and leaves as a political subject, how have architectural practices positioned architecture in this greater chain of consequences that waste making sets in motion?

1 Latour, Bruno. "How to Think Like A State," in The Thinking State, edited by Wim van de Donk, Scientific Council for Government Policy, The Hague, 2007, pp. 19-32.
2 Susan Gal, "A Semiotics of the Public/ Private Distinction." *Differences* 13.1 (2002): 77.
3 ibid., 78.
4 Ibid., 77-78.
5 Jurgen Habermas, *The Strucutral Transformation of the Public Sphere, An Inquiry into a Category of Bourgeois Society* (Cambridge: MIT Press, 1991), 125.
6 John Dewey, *The Public and Its Problems* (Athens: Swallow Press, 1927), 53.
7 Noortje Marres, "Issues Spark a Public Into Being" in Making Things Public, Atmospheres of Democracy (Cambridge: MIT Press, 2005).
8 Ibid., 209.
9 John Dewey, *The Public and Its Problems* (Athens: Swallow Press, 1927), 13.
10 Ibid., 19-21.
11 California v. Greenwood, 486 U.S. (internet) (1988)
12 Ibid., (internet)
13 Ibid., (internet)
14 Ibid., (internet)
15 John Dewey, *The Public and Its Problems* (Athens: Swallow Press, 1927), 43.
16 Martin Melosi, *The Sanitary City, Urban Infrastructure in America from Colonial Times to the Present* (Baltimore: Johns Hopkins University Press, 2000), 395.
17 http://houston.metblogs.com/archives/2006/12/what_is_stealin.phtml
18 Ibid., (internet)
19 Ibid., (internet)
20 Susan Gal, "A Semiotics of the Public/ Private Distinction." *Differences* 13.1 (2002): 86.
21 Ibid., 87.
22 Ibid., 87.
23 Ibid., 87-88.
24 Ibid., 88.
25 This is an interesting twist on the idea of the private being a 'privation' of the public.
26 http://houston.metblogs.com/archives/2006/12/what_is_stealin.phtml
27 John Dewey, *The Public and Its Problems* (Athens: Swallow Press, 1927), 64.
28 Martin Melosi, *The Sanitary City, Urban Infrastructure in America from Colonial Times to the Present* (Baltimore: Johns Hopkins University Press, 2000), 111.
29 Heather Rogers, *Gone Tommorow, The Hidden Life of Garbage* (New York: The New Press, 2005), 37.
30 Martin Melosi, *The Sanitary City, Urban Infrastructure in America from Colonial Times to the Present* (Baltimore: Johns Hopkins University Press, 2000), 186.
31 Matthew Gandy, *Recycling and the Politics of Urban Waste* (London: Earthscan, 1994).
32 John Tierney "Recycling is Garbage," *The New York Times*, 30 June 1996, (internet).
33 John Tierney "Recycling is Garbage," *The New York Times*, 30 June 1996, (internet).

34 John Tierney "Recycling is Garbage," *The New York Times*, 30 June 1996, (internet).
35 John Dewey, *The Public and Its Problems* (Athens: Swallow Press, 1927), 22.
36 John Dewey, *The Public and Its Problems* (Athens: Swallow Press, 1927), 96-97.
37 Martin Melosi, *The Sanitary City, Urban Infrastructure in America from Colonial Times to the Present* (Baltimore: Johns Hopkins University Press, 2000), 184-185.
38 Martin Melosi, *The Sanitary City, Urban Infrastructure in America from Colonial Times to the Present* (Baltimore: Johns Hopkins University Press, 2000), 184-185.
39 Mah, Harold, "Phantasies of the Public Sphere: Rethinking the Habermas of Historians," *The Journal of Modern History* 72: 1, *New Work on the Old Regime and the French Revolution: A Special Issue in Honor of Francois Furet* (March 2000): 153-182.
40 Nancy Fraser. Fraser, Nancy. 1992. "Rethinking the Public Sphere: A Contribution to the Critique of Actually Existing Democracy" in *Habermas and the Public Sphere* (Craig Calhoun, ed.). Cambridge, MA: MIT Press, 109-142.
41 See in particular the work of Solomon Benjamin on Delhi and Bangalore.

"...feeling is something much less direct than [the] face to face between a sentient being and some object to be felt. Feeling is more roundabout; it's the slow realization that something is missing. It resides, in a way, behind you, behind your back, or maybe even outside of you in an untouchable greenish cloud—something you don't exactly understand and in charge of which are people you can only see through peripheral vision."

Bruno Latour, *Air*

FROM EXODUS TO ATTACHMENT

Much of the indeterminacy and mobility of concepts and practices about public space introduced in "Is Waste Public?" are embedded in a complex politics of attachments. The irritation and intrusion of waste into daily life facilitates a productive political field in which architecture might seek new horizons of political mediation. Public space is here not a container or 'condenser' but a mobile mediation whose coordinates fall around dilemmas that are shared and vital. If design takes up the matters of concern as its locus of mediation, how does it imagine itself as a practice *in the world*? What departures or redundancies does such a practice make from the historical imagination of architecture as a practice that mediates concerns or environmental-cultural configurations?

Assemblages

The unintended consequences of waste saturate our environment: the air we breathe and smell, the soil on which modern cities were built, contaminating the water we drink. Its odors and other byproducts provoked a considerable amount of anxiety in 19th century colony and metropole, and today continue to maintain an active presence in public discourse across the global South. Much like cities such as New York in the 19th century, the presence of waste in the third world city signifies for the reformist imagination a failure of the modern city. Though we may be tempted to trace a clean lineage in the circulation of 'modern sanitation' along a continuum of social and economic development, it would be wrong to suggest that modern sanitation moves through global circuits historically as a homogenously applied and experienced apparatus.

Though many of the facets of modern sanitation—including assumptions about bodily health, public space and architecture—maintain a good degree of consistency, they are staged historically and contemporarily in vastly different arenas of power. As Timothy Mitchell has reminded us, though modernity "reproduces social worlds" through techniques of representation—of which sanitation is a central component—its authority or originality is subject to instability and rupture. He writes: "every act of staging or representation [of modernity] is open to the possibility of misrepresentation, or at least of parody or misreading." In these representational disjunctures, difference is produced: "Every performance of the modern is the production of this difference, and each such difference represents the possibility of some *shift, displacement, or contamination*."[1]

Mitchell's inquiry is mapped onto the historical and political configurations drawn between the west and non-west. It is an attempt to unravel both the idea of derivation (think of concepts of center and periphery in the geopolitical) and the somewhat defensive posturing of 'alternative modernities.' But rupture and contamination are experiences that are familiar to the wider cultural landscape of modernity, west and non-west alike. In its siting at the nexus of representational authority associated with sanitary practices and their concomitant disruption, waste is a central figure in the cultural experience of modernity. Though we assign them particular functions and uses in time, technologies such as waste

management and its supportive architectures are unstable things.[2] Waste and its technologies of mediation have an objecthood (an objectness of the object[3]) that in many ways exceeds language and the concepts we use to understand it. As I discussed in "Is Waste Public," rupture and violation function as a productive irritant in the field of culture, asking that concepts about common responsibility and public space be constantly put under question and reevaluation.

Modern sanitation is contested like any other modern representational technology. It horizons, terms and practices are constantly reworked. Spatial practices and technologies about waste enter into complex assemblages of concerns. The consequences of waste making are often unpredictable, as are the technologies used to manage these consequences. The uncertain outcomes latent in the politics of waste comprise a politics of 'atmospheres,' something akin to what Bruno Latour, after Peter Sloterdijk, calls a politics of climate control. "Climate control is not", Latour writes, "the outcome of a mad dream for total mastery, but on the contrary, a rather modest set of attempts to measure up what sort of breathing space is conducive to civilized life—or not."[4] The impulse to test out and experiment with the forms of democracy is implied here, as is the desire for politics to return to objects of concern, rather than a priori expectations placed on human beings to fulfill their supposedly natural role as unhindered, individual actors.

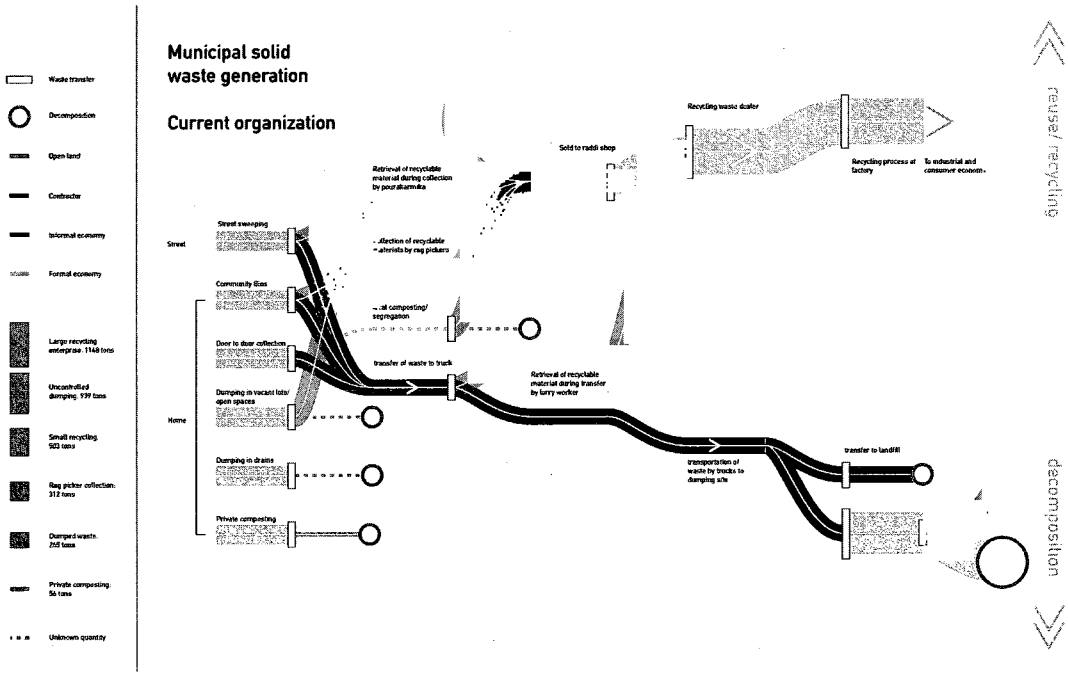
Outcomes are unpredictable. For instance, in much of South Asia, responsibility over waste takes place in a loose infrastructure of modern sanitation. Modern sanitation functions through tools of regulating everything from practices of disposing of waste to techniques of transport. But we cannot make the mistake of seeing modern sanitation as a totalizing force, like a master and his puppet. In cities such as Bangalore, the majority of the city's waste is handled extra-officially, and political contestations over waste are layered rather than purely hierarchical. The sanitary practices of engineers, bureaucrats and others are immersed in multiple assemblages of layered negotiations. Some are indeed more powerful than others. For instance, until recently, much of Bangalore's municipal waste was dumped on the periphery of the city. Historically, because the majority of the waste was organic in composition, it was at best useful to the agrarian periphery and at worst a benign if irritating presence. Today, plastic and other inert, inorganic consumerables overwhelm the organic composition of municipal waste. Toxins produced through breakdown and inflammation contaminate the air, water and soil and are useless to communities whose land is being quickly turned over and bought up by developers or claimed for infrastructure projects.

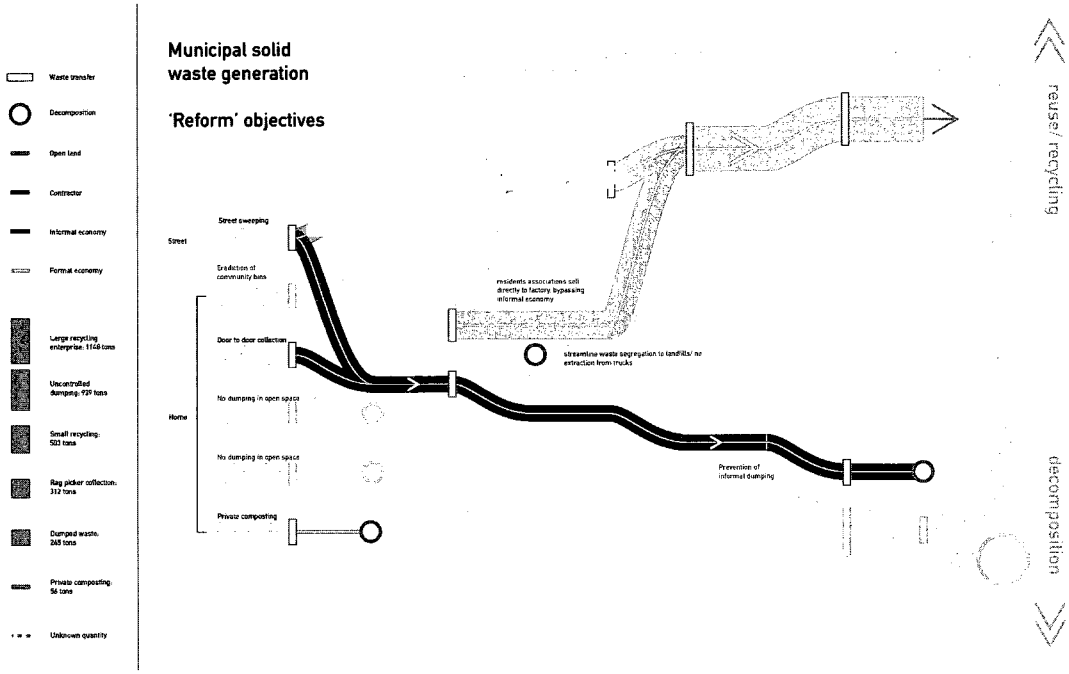
Power operates through a complex field of actors and processes: landowners, municipal authorities, technocrats, parastatal organizations, a contracting system dominated by the Reddy community, shifts in the composition of waste, urbanization and various forms of land acquisition, garbage truck drivers, councilors or village panchayats (village authorities), rag pickers, NGO's, wild dogs, pigs, odors, illness, petrol prices, etc. There are many alliances drawn here around various concerns about waste, ranging from contamination

to profit to economic survival. Objects are unstable and transformative in their consequences, as in the content of waste produced, rising petrol prices or the introduction of new compaction trucks. Different assemblages are produced. For instance, garbage truck drivers strike deals with local absentee landlords to dump on their land in order to cut costs of transport, as new privately run landfills are located much further from the city. The price of petrol, changing landownership patterns and methods of acquisition, village politics, the inclinations and negotiating capacity of the truck driver and the workings of the truck are but a few components of the assemblage of illegal dumping.[5]

Within this network of concerns and things, there is always contestation and disagreement. Assemblages are unstable. Consider my notes from a visit Gayatri Kumarswamy and I made to Kyalsanahalli, a village whose periphery is surrounded by a necklace of smoldering trash:

> We returned to the village, and to the shop across from the bus stand. We spoke to the shop owner, an older man sitting behind the counter (likely his father) and a farmer. The farmer said that 15 years ago they used to go and collect garbage, because it was good compost for the land. They would go out after 7 pm, and return by 7 am. They began paying the drivers to come dump here, and some residents were drivers themselves. Instead of collecting compost, drivers began dumping compost around the village, say about 10 years ago. They would sort through the garbage themselves and use compost. 5/6 years ago, the kind of garbage that was coming was full of plastic and glass [non-degradables]. The garbage was really bad, so the drivers would pay them to use their land. Around 2/3 years ago, the garbage was really bad, everything that was being used came wrapped in plastic (before, this was only partial). One man in the shop explained that the BBMP did have a "proper grounds" but added that drivers wanted to save on petrol and would not go so far. One impact of mechanized trucks, they explained, was that it was easy to dump quickly, it doesn't take an hour to unload a truck anymore (this makes it easier to dump in the middle of a road). The elder man in the shop said that the kind of garbage they get is so dirty that people working in garbage picking areas get AIDS after 5-6 years.
>
> Gayatri wanted a haircut, and I was considering a head massage, so Gayatri stepped into the barbershop next door, and waited for the owner/ employees to come back (they were eating lunch down the road). I took pictures of the BBMP truck parked near the bus stand (the bus stand being a shelter). I walked into the barbershop, and Gayatri tells me she is talking to the driver of the truck, who was hanging around with a few others in the barbershop. He had been listening to the conversation, and told her "They don't want poor





Networks of waste handling in Bangalore

> people to get work, don't write all this in the papers" [assuming we were journalists]. He added that they were probably mad because trash was dumped on their property. We asked him which ward he works in, and he said the MG Road/ Shivajinagar ward. He lives in the village, but he does not dump here, he dumps his truck near Devanahalli. A man then glared into the shop, I did not see him but Gayatri did, and the driver's voice softened. Gayatri asked him if it was ok if we kept talking, and he said yes, but there was a palpable tension in the air, so we stopped the conversation.[6]

The complaints of the shop owner, the protests of driver about his misrepresentation, and the burning embers of trash encircling the village produce a complicated picture of the political. Though the contractor-driver-absentee landowner assemblage occupies a greater position of power, this does not mean that new alliances cannot be forged, that objects will remain stable in their composition or performance, or that the network in question will not experience minor or major alterations.

Besides offering trash for rummaging, the illegally dumped waste offers little in the way of productive resources for the surrounding community, save the benefits delivered to contractors or landowners. If the consequences of waste making are here filtered through a powerful and exploitative assemblage, the porosity of the waste stream in a city such as Bangalore also functions to allow for waste to be seen as a productive resource at multiple scales. Situated earlier in the removal of municipal waste, auto rickshaws associated with new door to door collection techniques transfer neighborhood collections to larger trucks. In some neighborhoods, the transfer functions as a transaction point for workers and truck drivers to sell off recyclables to rag pickers or local *raddi* (rubbish) shops. From these shops, paper, cardboard and plastics travel to vendors in the city, which then sell recyclables to a factory. In this and other ways, recyclables enter into a larger circulation, distributing value throughout the economic landscape of the city. Though the recent turn to door to door collection in Bangalore introduced a model of waste collection and disposal that discourages such practices and ruptures, it inserted itself into preexisting conditions and new potentialities, resulting in consequences both unanticipated and expected. The site of transfer—the street—and the openness of exchange between two vehicles in common space are embedded in a larger assemblage of actors, politics and objects whose concerns are, I suspect, as complicated as those of Kyalsanahalli.

The physical contours and workings of the truck and the street join with sanitary practice, the concerns of truck driver, the ragpicker, and other forces in constituting an assemblage of practices in which modern sanitation is only one component. There may be exploitative politics and negative consequences at play—it would be naïve to suggest an instance like this as a 'clean' model to be emulated structurally. Conversely, one may argue in this specific case that the ruptures taking place in the playing out of waste practices offer avenues for both the distribution of value in the city and the functional reuse of consumerables.

Garbage? Not in my backyard, says Bangalore

With the city generating 3,000 tonnes of garbage a day, its disposal has thrown up several issues

Divya Gandhi

BANGALORE: The Forest Department bemoans the danger to wildlife in the Bannerghatta National Park from mounting garbage. At the other end of the city, the Air Force Station, Yelahanka, voices concern over aircraft safety that is now compromised by the increasing bird activity around open dumpsites nearby. If these complaints come from unexpected quarters, the Karnataka State Pollution Control Board (KSPCB) gets at least four complaints every week from residents in the city about problems of municipal waste.

A comprehensive study of solid waste generation in Bangalore conducted in 2004 by H Lakshmikantha of KSPCB found that 1,500 tonnes of waste is generated every day that has no fewer than 60 unauthorised dumpsites. The figure now stands at over 3,000 tonnes, Mr. Lakshmikantha told *The Hindu*. The largest component of this garbage, the study found, was not industrial waste or that from commercial establishments, but household waste. As much as 74 per cent of this is biodegradable.

MOUNTING PROBLEM: *There is a need for the BBMP to come up with guidelines and infrastructure to get residential areas and welfare associations to manage organic waste.* – PHOTO: K GOPINATHAN

- **Largest component of garbage is household waste**
- **Domestic waste must be segregated at the locality level**

However, the BBMP's solution to mounting garbage crisis in the form of three mega waste-to-energy projects outsourced to private companies can only be a short-term one, according to environmentalists and experts, and one potentially riddled with problems.

Out of our backyards but into villages in and around Mavallipura, Mandur and Doddaballapur, the garbage will be segregated, treated and converted into energy at the project sites. "When these sites start functioning at full capacity, 90 per cent of Bangalore's garbage problems will be solved," says U.A. Vasanth Rao, Joint Commissioner (Health) at BBMP. Together, they will have the capacity to compost or incinerate 2,500 tonnes of garbage a day, he said.

However the cracks are already beginning to show.

Transporting Bangalore's *garbage from one end of the city to another has thrown up a whole set of unforeseen issues.* A land dispute is preventing the Mavallipura project from running to its full capacity, according to B.C. Sharma, vice-president of Ramky Enviro Engineers, the company that is developing the project.

Trouble

The Doddaballapur project (given to Terra Firma Biotechnologies Ltd.) is running into trouble with protests by residents of the Doddabelavangala village, who do not want a convoy of 100 trucks passing through their village every day. In fact, truck contractors have asked the BBMP for "police protection." The residents are also concerned that the ground water in the village will be polluted, Mr. Rao says.

"Why should village residents have to deal with the *city's garbage just because we do not want it in our backyard?*" asks Wilma Rodrigues, founder-member of Saahas, a non-governmental organisation that deals with solid waste management. While these projects might solve some of the issues of unauthorised dumping, Ms. Rodrigues says it makes little sense to have the solid waste management plants so far away. "Most of the expenditure on waste disposal goes in transport costs. If organic waste is sorted and composted at the point of generation, it will take care of 50 to 60 per *cent of the garbage quantum.*"

Segregation of waste

The BBMP should instead implement the Municipal Solid Wastes (Management and Handling) Rules to get residential localities to segregate and compost domestic waste, she says.

"The BBMP can save a large part of its Rs. 100-crore expenditure on waste collection and disposal if it gets localities to compost waste themselves. Many areas, such as Kalyanagar, have shown the way," she said.

The amount of garbage generated in Bangalore every day has doubled in the last four years: from 1,500 tonnes to 3,000 tonnes. Public Eye looks at the mounting solid waste crisis in the city. If you want to share your opinions on these set of articles, email us at bgreporters@thehindu.co.in or write to The Hindu, 19 &21, Bhagwan Mahaveer Road, Bangalore 560 001.

Wasted: an authority on waste management

Krishnaprasad

BANGALORE: Disgraceful. This is how Almitra H. Patel describes the failure of the Bangalore city administration to designate waste disposal sites eight years after the Municipal Solid Wastes (Management and Handling) Rules came into existence.

There is none more empowered to say this than 72-year old Ms. Patel, whose legal battle in the Supreme Court led to the formulation of the rules for the entire country.

Ms. Patel has lived on the outskirts of the city near Kothanur on Bagalur Road managers must do is to follow in letter and spirit the report "Solid waste management in class-1 cities in India" brought out by the committee constituted by the Supreme Court based on her public interest litigation petition.

Ms. Patel, who holds a Masters (in Engineering (construction) from the Massachusetts Institute of Technology, has studied the municipal waste disposal system in 138 cities in India and 19 waste disposal facilities in seven foreign countries.

She took up the issue of municipal waste management when she was 62 years

Almitra H. Patel

criminately disposing of garbage on either sides of the roads on the city's outskirts, and onto marshes and stream banks.

Patel says that the municipal authorities should ensure that degradable and non-degradable wastes are separated at the primary level. This they have failed to do.

Also, the wastes collected from road sweeping and from households should not be mixed as it would affect the waste processing method due to mixing of mud and with degradable waste, she says.

Another important aspect ignored by the city administration is disposal of construction waste – building materials, debris and rubble from constructions, remodelling, repair and demolition trics me such waste after processing as a base while constructing roads. She feels it is time the civic authorities included the subject of waste segregation into the BBMP bylaws. Its separation into organic, inorganic and recyclable should be made mandatory for residents.

Despite her experience in municipal waste management, Ms. Patel has kept herself away from BBMP in the past few years due to what she says is the "indifferent attitude of the officials towards waste management." "I am dying to help them, but only if they want it," says Ms. Patel.

Recruitment postponed

Staff Reporter

BANGALORE: The Territorial Army has postponed the recruitment for its Infantry Battalion that was scheduled to be held between August 11 and 14. The new dates of the recruitment will be announced later, a press release said.

CLASSES for IAS
BIMALA

National Institute of Fashion Technology

ANNOUNCEMENT OF PART TIME (CE) PROGRAMMES 2008-2009

NIFT, Bangalore announces highly job oriented Part Time/Work End Continuing Education Programmes in Fashion Design, Textile Design, Apparel Manufacturing, Export Merchandising and Retail Management. For Further

Regardless, the rupture reveals not the secrecy of the waste stream (here, anything but secret) but rather the centrality of matters of common concern in producing an active political field—in other words, in producing a politics of public life.

Such assemblages entail constant negotiation about managing the consequences of the objects at hand. Politics follows unpredictable routes. Rarely does contestation seek to turn over the waste stream, exit it or merely fall in line with a universal profile of waste management of sanitation. The political unfolds in the micrological negotiations between actors, things and regulatory forces. Objects and technologies maintain a good degree of independence in the consequences they produce, but are inseparable from cultural and political formations that either arise out of interaction with these objects or that call these objects into use. Gilles Deleuze and Fleix Guattari cautions us against removing objects or "tools" (to which we could include architecture) from the assemblages that produce them as a technology:

> "We think the material or machinic aspect of an assemblage relates not to the production of goods but rather to a precise state of intermingling of bodies in a society, including all the attractions and repulsions, sympathies and antipathies, alterations, amalgamations, penetrations, and expansions that affect bodies of all kinds in their relations to one another... *Even technology makes the mistake of considering tools in isolation: tools exist only in relation to the interminglings they make possible or that make them possible.* The stirrup entails a new man-horse a new man-horse symbiosis that at the same time entails new weapons and new instruments. Tools are inseparable from symbioses or amalgamations defining a Nature-Society machinic assemblage... a society is defined by its amalgamations, not by its tools."[7]

The problematic raised in this short passage is one that continues to haunt a critical discourse on waste—and which is constantly reproduced in architectural and urban practices. *Ilha Das Flores* (1989), a documentary about waste making in Porto Alegre, Brazil, is emblematic of both critique structured as a revelation, and the sometimes unintentional eruption of a politics of imbrications into a representational practice. The film follows the vector of a tomato that is thrown out by a fictional Brazilian perfume seller, Mrs. Anete. Like these texts, it attempts to reconstruct the infrastructure of the waste stream through a critical perspective. The parts of waste management are disassembled and reassembled from the lens of a tomato. We learn, through the course of the cartoonish documentary, of how the tomato is picked, who picks it, where it is sold, how money is exchanged for vegetables, where the rotten tomato travels to, and how it is sorted through after it reaches the landfill. Upon arriving at the dump, the tomato is sorted out by the owner of a pig. Children of a shantytown near the dump are left to sort through whatever is deemed unfit for pigs, a

Stills from *Ilha Das Flores*

pathetic remainder of human and animal consumption. The contrast between settings of consumption is intentionally stark. The perfume seller, Mrs. Anete, flashes a photogenic smile across her face, joined by shots of both her wedding pictures and her middle class family gathered around the dinner table. They eat, we are told, sauce from the tomatoes that were fit for eating. The primary effort by director Jorge Furtado is to offer through bitter irony (there are no flowers on the island of flowers, we are reminded) a picture of the inhumanity of consumption and extreme class inequality. In order to do this, the supposed private act of waste making is made an unavoidably public issue. Its consequences are illustrated in detail around the issue of waste *and* consumption. Thus, the tomato is followed from its picking in the field to its recycling at the landfill.

Like countless volumes of non fiction literature and other forms of documentation on the waste stream, the effort is made to unveil the shrouded components of the waste stream. In Gone Tommorow, The Hidden Life of Garbage and Garbageland, writers Heather Rogers and Elizabeth Royte, respectively, craft narratives around revelations not unlike that posed by the school teacher featured in John Tierney's article. The sensations and stories associated with the waste stream are, in the form of non-fiction, laid out before readers to consider and process. The hope attached to these texts is that, as Dewey might put it, sensations will be turned into perceptions. Where the documentary departs from its counterparts is its rigorous satire of the assemblages at play in the life of a tomato. Forces much greater than the family, such as class, race, and capitalism are interwoven with the particular day to day politics of the wasting of an organic thing. Many of the components of the assemblage are merely suggested, but nonetheless register as an effort to move beyond a mere politics of visibilizing the invisibility of the waste stream. Humans are implicated in broader networks of exchange and transaction with the natural, which, in this case, is positioned in a more powerful assemblage. The pig-rural land-capitalism-waste assemblage has more 'climate control' than the impoverished human inhabitants of the Island of Flowers.[8] Human versus nature is supplanted by the parallel functions of networks composed of both artificial and natural entities.

Though *Ilha das Flores* elides some of the back and forth of the politics of this particular entanglement (is there no contestation?), it nonetheless foregrounds the terrain of the political as an entanglement of consequences, where the actions of daily consumption are implicated in a much larger web of attachments. Architecture (and design more broadly), we must remember, is imbricated with other components of waste assemblages. Transfer stations, landfills, recycling centers and garbage bins comprise a number of existing pressure points in the waste stream where architectural concerns are deployed. Though it has no voice to speak for it in a documentary such as this, the political field that I am drawing together is a crucial site of intervention for the imagination of architecture as a political practice. Though the effort of a documentary such as this is to inform, we are overburdened with information in modern society (a classic Deweyan dilemma). Illumination through information is a useful pedagogical tool, but as we have learned in the United States and elsewhere,

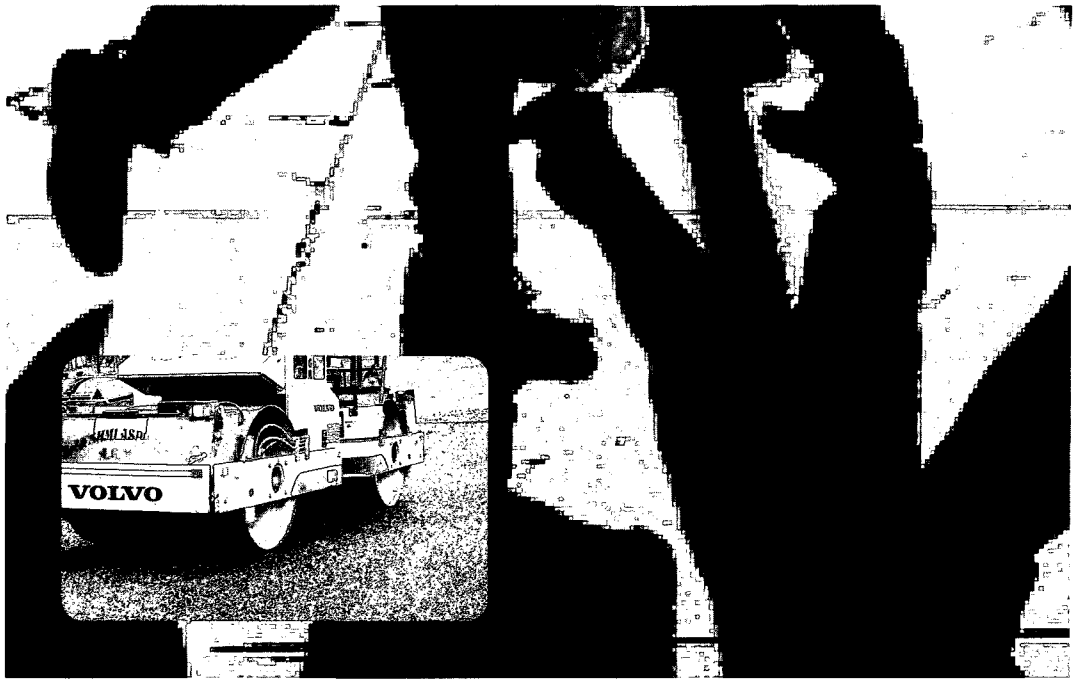
the mere fact of information availability does not bring a public into being. We require tools and aids to mediate our encounter with shared infrastructures in order to harness the potentially productive political spaces of encounter with shared consequences. How might architecture produce *interest* in these shared entanglements?

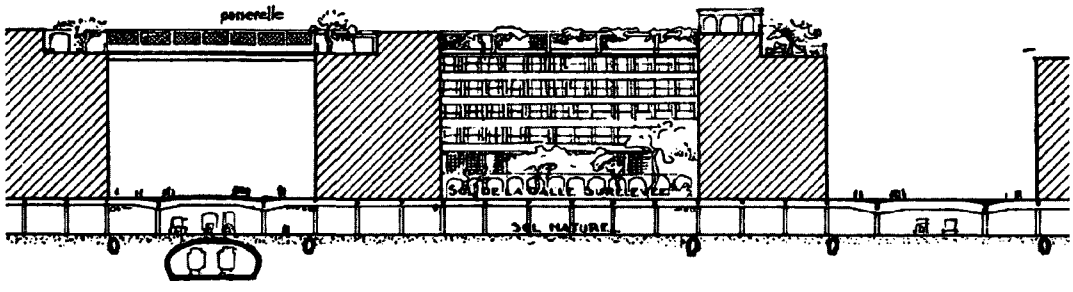
For an interface

Nature is a model of silence and of political accord organized according to a very particular architecture, as shown in Boullee's famous project for Newton's tomb. This assembly has disappeared. Which assembly, then, are we in now? This is what we must discover.[9]

Interfaces with waste produce considerable anxiety. At a crucial moment in the consolidation of urbanistic practices about the modern city in the 19th century, waste was removed from the sensory and political terrain of daily life. We need only turn our heads downward to read the consequences of this transformation. Technologies such as asphalt or paving posited the space of the street as a surface devoid of waste, unaccepting of decomposition and filth. Paving was invested with a "prophylactic potential," as Rodolphe el-Khoury puts it[10]. The membrane of macadam, on which Baudelaire would stand and ponder the anxieties of modernity, shielded the common space of the street in 19th century Europe from the miasmatic gases and moisture of the earth—then thought in the sanitary imagination to be responsible for menaces such as the plague and other illnesses.[11] The hard physical environment was considered responsible for a host of bodily conditions. El Khoury writes: "In the Parisian imaginary, the subterranean soil amounted to a gigantic reservoir where the remains and waste of past generations precipitated into a horrific brew."[12] The "telluric emanations" of the earth did not stop at the ground, they were also said to creep up into the built landscape of the city, posing the membrane of a wall as "an artificial extension of the earth."[13] Assumptions about proper behavior, visual markers of cleanliness and bodily health formed a tripartite set of concerns that that the built was responsible for mediating and signifiying. Traces of this early sanitary problematic can be read in contemporary political tussles, as when slums are said to be dens of disease and disorder. The built becomes not only a sign but an actor in a larger assemblage of things.

Though architectural modernism may be seen as a decisive break from this earlier experience of modernity, the miasmatic earth persisted as a concern, embedded in other concerns about the movement of vehicular traffic and accommodation of modern cement. Architecture conducted its own response to the ground plane, repositioning the activities of the ground plane away from the unpredictable workings of the earth. Le Corbusier, in his "Five Points for a New Architecture"[14] suggested that the building free up the ground plane in order to functionally maintain concrete through moistening (to keep concrete from cracking), though one can read in his argument a suspicion of the decay affiliated





LE CORBUSIER, 1915. TOWNS BUILT ON PILES

e ground level of the town is raised from 12 *to* 16 *feet by means of conc*
's which serve as foundations for the houses. The actual " ground " of
'n is a sort of floor, the streets and pavements as it were bridges. Beni
s floor and directly accessible are placed all the main services, at pre.
ied in the ground and inaccessible—water, gas, electricity, telephone wi

with the terrestrial. Not only the residence, but the entire supportive infrastructure is evacuated from the ground. In his proposal for "Towns Built on Piles" (1915), he describes:

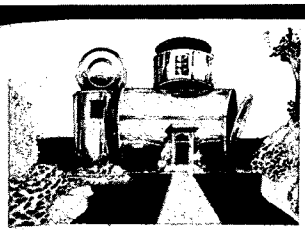
> The ground level of the town is raised from 12 to 16 feet by means of concrete piles which serve as foundations for the houses. The actual "ground" of the town is a sort of floor, the streets and pavements as it were bridges. Beneath this floor and directly accessible are placed all the main services, at present buried in the ground an inaccessible—water, gas electricity, telephone wires, sewers, etc.[15]

And what of the activity of the ground plane? "Cafes and places for recreation would no longer be that fungus which eats up the pavement of Paris: they would be transferred to the flat roofs, as would be all commerce of a luxury kind..."[16]

Though figures such as Le Corbusier were interested in distancing architecture from the unhygienic, architectural discourse has remained largely mute to the encounter between waste and daily life. In recent decades, garbage entered the realm of architectural discourse primarily through two spheres of interest. One, the larger garbage architecture culture of the 70's sought to use garbage as a material for architecture, exploring its use in low income housing and various settings at the imagined peripheries of the modern: communes, third world settings, etc.[17] Garbage architecture was proposed in the 1970's by Martin Pawley as a potential solution to the projected global housing and resource crises as well as a departure from the supposed mystification of the design profession. Much of the spirit of his project survives today under the umbrella of sustainability and alternative building practices. Pawley writes of the design problem at hand:

> The irrelevance of conventional housing design to the problem of human habitation has been crushingly demonstrated by the repeated housing crises of the present century. It is accepted that the world's urban population will rise from an estimated 333,000,000 to over three billion by the year 2000...then it must also be accepted that the resource basis, in terms of labour and materials, for housing presently employed is totally inadequate. A revolutionary integration of the use of materials is urgently required. This is a *real* design problem—as opposed to the forms of environmental repression and exchange-value accretion which presently exercise the skills of the design professions.[18]

More recently, architects have revisited the interface, taking up the architecture of waste processing as a potential site for the unfolding of public life. Abalos and Herreros realize this relationship by positioning a museum about waste processing in the heart of a recycling plant in the outskirts of Madrid, immersing the subject in the machinery of waste processing. The interface with



GARBAGE HOUSING

Martin Pawley

2 GLS. 21+. Hamp. fl. £5 8
p.w. inc. 267 0485.
3RD girl, Kens. £7 7. 373 068
3RD girl 048
3RD girl. 58
4841.
3RD girl, s.W.1
flat. Own room £7 p.w. 622 89
after 3 p.m.
3RD & 4TH G. E.5. 806 3678 ev
5TH M. N.W.3. £5. 794 2814 ev
4TH GIRL, Oct. 19-Nov. 15. Ow
room. £21 inc. 794 5321 aft
6.
4TH person: 28+. C.H. Georgia
hse. O/rm. £6 wk. 735 4741 af
6.
4TH gl. grad. Sh. rm. £5 N.W.3
Nr. Heath. 435 9196 after 6.

This article represents the conclusions, more or less, of three years interest in housing: almost without exception the facts and theories have been culled from the minds of many honest, intelligent and concerned practitioners. That I ultimately reject the solutions proposed by such men is something I do on my own responsibility. What is proposed at the end of this article is something that, under the influence of a number of students whom I have been privileged to teach at the Architectural Association, I have come to believe in almost against my will and certainly against my own instinctive inclination. I do not believe there is any other possible solution to 'the housing problem'. For giving me this perception I would like to thank John Dickinson, Jon Rowland, Adrian Richardson, David Hunt, and many more. They see a future in design where I saw none at all.

Richard Buckminster-Fuller was once ridiculed for his remark that the answer to the housing problem lies on the way to the moon; and, enormous as his following is – particularly among students – there are not many who could convincingly defend his standpoint, or indeed be able to maintain it themselves after a visit or two to those notorious areas of housing need which exist in all the major cities of the world. From the street dwellers of the cities of the East to the squatters and homeless of Western metropolitan areas, evidence abounds that the provision of housing today is a stochastic process with few real winners and many, many losers. Here in Britain we know that approximately 11% of our housing stock is classed as unfit for human habitation by official standards. Approximately 25% of it is in urgent need of repair or the provision of basic facilities: about 2,000,000 families are living in conditions of poverty below the Ministry of Social Security minimum income line. These figures – and others like them – are well known and well publicised: they cut straight across the board encompassing owner occupation (about 50%), local authority tenancy (about 30%), and privately rented accommodation – which includes luxury flats overlooking Lords Cricket Ground as well as basement rooms in Notting Hill (about 20%). Despite a notional parity of dwellings and households for the country as a whole, and despite an anticipated downturn in the rate of formation of households of as much as 30% in the next five years, the battle is being lost. Not so much in terms of the provision of an adequate number of dwelling units, as in terms of a final, irrevocable gap between expectations and realities, dreams and fulfilments. We are beginning to realise that rising standards of living are in part merely 'obsessive materialist escalation', that the achievement of (say) Parker Morris space standards for all by the year 2000 merely pre-figures further space demands for the future; that the whole consumer cycle simply converts dreams into wants and wants into needs: it is not finite, but infinite; there never will be a plateau, never an end.

The gap between expectations nurtured by advertising and hearsay, and realities shown by statistics is more clearly seen in the United States than here. Public sector housing in the US for the year 1965 accounted for a bare 2% of dwellings completed; private rental completions accounted for 30%, and building for owner occupation as much as 68%. Two years later Herbert Gans computed that fully 40% of the American population lacked the necessary income to step onto the first rung of the ladder of house purchase. Two years later still, with more summers of racial violence and mounting unemployment behind it, the US government lopped $500,000,000 from the Federal Housing budget – nearly $400,000,000 of it coming from Housing and Urban Development's allocation, and most of that being taken from Operation Breakthrough, the initially well-financed attempt to exploit spin off from advanced technology for housing purposes. HUD now has an annual budget of $1,600,000,000 – compared to $4,000,000,000 for the space programme and $25,000,000,000 for the war in South East Asia: all out of a Gross National Product of $800,000,000,000. With this evidence of real priorities the US government is still committed to constructing 26,000,000 dwellings in the next decade. A target as impossible as was an annual rate of 500,000 completions for Harold Wilson's administration in Britain. The trouble is that an increasing proportion of the population in all Western nations is becoming urbanised, and urban housing is becoming too expensive for anyone to afford except millionaires or those prepared to endure or enjoy conditions of overcrowding which make Parker Morris space standards look like the product of pathological claustrophobia. In the inner London boroughs the incidence of shared dwellings has soared by as much as 30% in the last decade: in Islington 57% of the dwellings in the borough are inhabited by families sharing one or more basic facilities in addition to access routes: in the *Evening Standard* there are between 50 and 70 classified advertisements per day requesting 'fourth girl', 'third boy' and so on1. In most of the urban centres of the West shared dwellings *are the norm* – whether housing authorities like to admit it or not1. Even our own much vaunted New

1. I am indebted for these figures to John Dickinson, commune organiser and author of 'Why Leave London', an Architectural Association thesis presented in 1970. This extremely coherent document outlined various practical methods of defeating rising land and food costs by organised communal living. Copies of the report are available from the author.

waste is pedagogical, the minor museum functions as a public intrusion whose presence at the heart of the plant contaminates the otherwise private program of the recycling plant. The urban periphery, an "area of impunity," is for them an important public zone of friction, regulated by infrastructure but relatively unmarked by the determinacy of the city.[19] Like Abalos and Herreros, I see the potential for architecture to take up the life and trajectory of a wasted thing, though I am interested in this architecturally as an investigation that is closely tied to daily life, rather than an architecture of the periphery.

If practices such as Abalos and Herreros work towards an engagement or interface with the machinery of waste processing, other practices work towards more radical programmatic juxtaposition, recalling the friction of 'social condensers' 'patented' by Rem Koolhaas and Elia Zenghelis: "Programmatic layering upon vacant terrain to encourage dynamic coexistence of activities and to generate through their interference, unprecedented events."[20] Mira Engler and Gina Crandell, in their project "Open Waste System Park", produce through collage, diagrammatic modeling and narrative an image of waste processing sited within the existing infrastructures of suburban life. They describe some of the components of its quotidian site and machinery:

> At the neighborhood level, the grassy margin between the street and the sidewalk is transformed into a practical and playful strip, made active as recyclables are frequently placed there and removed. It is equipped with roofed bins and transparent cases for collecting waste, where neighbors can sort and claim rejected goods.[21]

For Engler, the infrastructure of waste processing is set in a tense encounter with activities of daily life, reinforced by the two dimensional language of collage and programmatic zoning. Mierle Laderman Ukeles' "Flow City" (begun in 1983) project functions as a hybrid of interface through machinery and interface through programmatic layering, taking up the transfer station as a productive site of investigation. Sited in a Marine Transfer Station in NYC, Ukeles imagines eruptions of intensification, visibility and accumulation within the otherwise mundane internal infrastructure of the waste transfer station. Ukeles' infrastructures of walking and viewing function as architectural prosthetics for the senses that illuminate aspects of processing, such as transfers made between vehicles or the particular quality of wasted objects passing through the station. Though the activities of daily life are contaminated by their contact with waste processing in interventions by Engler and Ukeles, they are ultimately supplementary. Much of the architecture of daily life remains intact and is unaltered by the interface. New programmatic sites are imagined as a retooling of existing infrastructure, rather than intrusions into more private domains (such as the home).

I argue in this thesis that in taking account of the gravity of a politics of consequences, we may arrive at potentially new configurations that may not only supplement but reimagine the architectures of daily life as machines of intense

negotiation and mediation with the consequences of waste. If architecture were to engage with the richness of the object of waste—not merely trash as such, but how it is handled, conceptualized—etc., both process and product will take on new roles and horizons. The social condenser may give way to an equally open ended project of *mediation* within and between assemblages. Research (heretofore largely but not wholly about program) may further engage with a wider plane of concerns, political, technological, ecological etc. Consequences of action in the world do not fall into neatly disciplinary categories. Where do we draw alliances in these complex assemblages? What methods of design and pedagogy might encourage a deepening and intensification of an engagement with the systems, technologies and objects that constitutive the waste stream?

We should be mindful here of the open endedness of this project. To settle into a predominant technique or image would remove the potential mobility and disruption of entering into a set of imbricated concerns. We may find ourselves on familiar political terrain as a result. For instance, Alejandro Zaera Polo argues for a politics of the envelope, drawing in Latour's Deweyan challenge of a politics of concerns as mill and grist for a politicization of the building envelope. Polo, however, diverges from the implications of such a project by relying on familiar dialectical political tropes of visibility and invisibility, exclusion and inclusion:

> Because of its smaller grain, traditional city fabrics were perhaps better adapted to intensifying a social mix and the coexistence of diverse population groups in a space. The only way to ensure that the skin of flat-horizontal envelopes does not create a radical split between those who are included—let's say shoppers with certain acquisitive power—and those who are excluded is to devise equally sophisticated mechanisms of permeability across the skin.[22]

The envelope is here affiliated with political models that today appear to be under significant duress. Peter Sloterdijk, fervent critic of individualism, says of Kant and the entrance of the individual after God:

> In Kant, this loss of a divine envelope is transformed into a condition that allows the possibility of our autonomy. Kant refused with all his heart the idea of a divine stomach in which we lived out our entire existences—and this refusal is the essential gesture of modernity.[23]

We do not have to accept the consequences of this gesture: the unattached, autonomous individual. Sloterdijk asks us to consider the skins and membranes that mediate our survival and *cohabitation*. Ironically, as Latour reminds us, to inhabit atmospheres (as in a womb) means that "to be emancipated and to be attached are twice the same thing."[24] The potentiality of Sloterdijk's provocation suggests that the membrane is not necessarily an envelope as such (it may or may not be), but a way of thinking about the political. Membranes of mediation

may be thin, embedded in attenuated processes or rigorously temporal. As Paul Rabinow writes of assemblages: "They are a distinctive type of experimental matrix of heterogeneous elements, techniques, and concepts... they are comparatively *effervescent*, disappearing in years or decades rather than centuries."[25] There may be no one image or technique that encompasses an entry into an assemblage of concerns. Such is the unpredictability (and potentiality) of an architecture predicated on matters of concern.

If exodus was for a generation of architects (including my own) an attractive and radical statement about architecture's potential for social mediation, exodus seems today untenable in a politics of survival. Architecture is implicated in a politics of attachments, a fact that recent investigations into the sensory and the ecological in architecture might productively learn from. Like the assemblages I discussed earlier, there is no exit as such. Interpretation, experimentation and negotiation are indispensable components of a political practice. *There is no exodus, only attachments.*

1 Mitchell, Timothy. *The Stage of Modernity*, in *Questions of Modernity*, ed. (Minneapolis, University of Minnesota Press, 2000), 1-34. Emphasis mine.

2 See especially Brian Larkin, *Signal and Noise: Media, infrastructure and urban culture in Nigeria*, (Durham: Duke University Press, 2008).

3 Bruno Latour comments of the problem of the object today in an interview with Jean Christian Royoux: "We shouldn't fool ourselves on this question of multiple points of view. The object of the "earthly sphere," like the human body, has a lot of different interpretations because it's a very complex object that isn't unified at all. Multiple points of view do not result from the weakness of our successive interpretations, but from the richness of the object itself. It's because it's complex that it generates so many points of view about itself. This complexity is a eulogy of the object and not a eulogy of the subjectivities looking at it from the outside. The end of the controversy, the moment of reunification, can no longer come with the sudden emergence of an object that would silence interpretations." "There is No Terrestrial Globe," in *Cosmograms*, ed. Melik Ohanian (New York: Lukas and Sternberg, 2005), 217.

4 Bruno Latour, "Atmosphere, Atmosphere", online entry to Olafur Eliasson catalogue, ed. Susan May.

5 This is culled from multiple conversations and research conducted in Kyalsanahalli, a village located in northwest Bangalore.

6 Fieldwork conducted with Gayatri Kumarswamy on July 7, 2008.

7 Deleuze and Guattari. *A Thousand Plateaus*, (Minneapolis: University of Minnesota Press, 1987), page 90. Emphasis mine.

8 I am indebted to Chris Kelty for illuminating this aspect of Ilha Das Flores.

9 "There is No Terrestrial Globe," in *Cosmograms*, ed. Melik Ohanian (New York: Lukas and Sternberg, 2005), 217-218.

10 El Khoury, Rodolphe, "Polish and Deodorize: Paving the City in Late-Eighteenth-Century France," *Assemblage*, No. 31 (Dec., 1996, 13.

11 El Khoury, Rodolphe, "Polish and Deodorize: Paving the City in Late-Eighteenth-Century France," *Assemblage*, No. 31 (Dec., 1996), pp. 6-15 and Mirko Zardini, "Surface of the City: The Ground of the Modern City and the Preponderance of Asphalt," in *Sense of the City: An Alternate Approach to Urbanism*, ed, Mirko Zardini. (Montreal: CCA, 2005).

12 El Khoury, Rodolphe, "Polish and Deodorize: Paving the City in Late-Eighteenth-Century France," *Assemblage*, No. 31 (Dec., 1996), 11.

13 Ibid., 13.

14 Five Points for a New Architecture. http://caad.arch.ethz.ch/teaching/nds/ws98/script/text/corbu.html

15 Le Corbusier, *Towards a New Architecture*, (Mineola: Dover, 1986), Page 59.

16 Ibid., 60.

17 See also Alessandra Ponte, "Garbage Art and Garbage Housing." *Log*, 2006 Summer, n.8, p.99-111

18 Pawley, Martin. "Garbage Housing." *Architectural design*, 1973, v. 43, p. 780.

19 Inaki Abalos. *Areas of Impunity/ Areas de Impunidad*. (Barcelona: Actar, 1997).

20 Koolhaas, Rem, ed. *Content*, (Koln: Taschen, 2004), 73.
21 Engler, Mira. Designing America's Waste Landscapes, (Baltimore: Johns Hopkins University Press, 2004), 173-174.
22 Zaera Polo, Alejandro. "The Politics of the Envelope: A Political Critique of Materialism." *Volume*, 2008, v. 17, p. 84.
23 Peter Sloterdijk, "Foreword to a Theory of Spheres" in *Cosmograms*, ed. Melik Ohanian (New York: Lukas and Sternberg, 2005), 234.
24 Latour, Bruno, "A Cautious Promethea? A Few Steps Toward a Philosophy of Design (with Special Attention to Peter Sloterdijk)," Keynote lecture for Networks of Design, Falmouth, Cornwall, September 3rd, 2008.
25 Rabinow, Paul. *Anthropos Today*. (Princeton: Princeton University Press, 2003), p. 56.

EPILOGUE

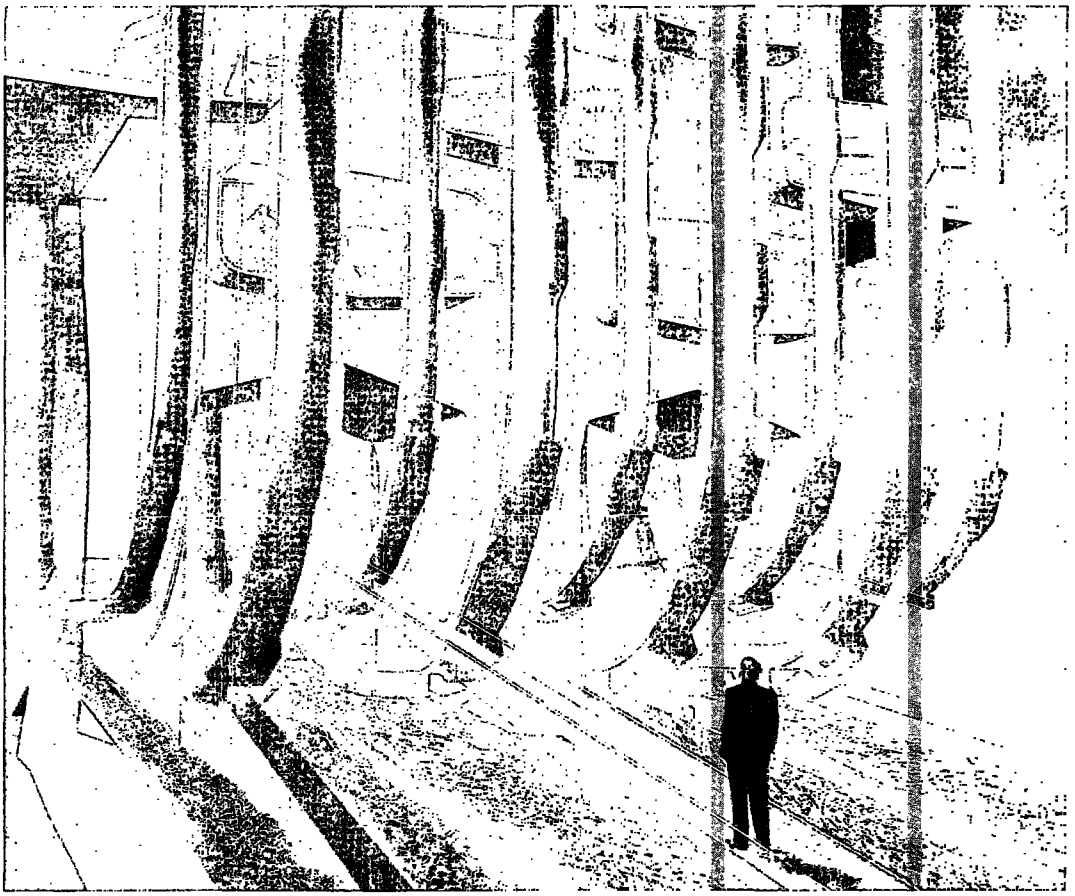
3 MACHINES FOR PUBLIC LIFE

+10 OBJECTS

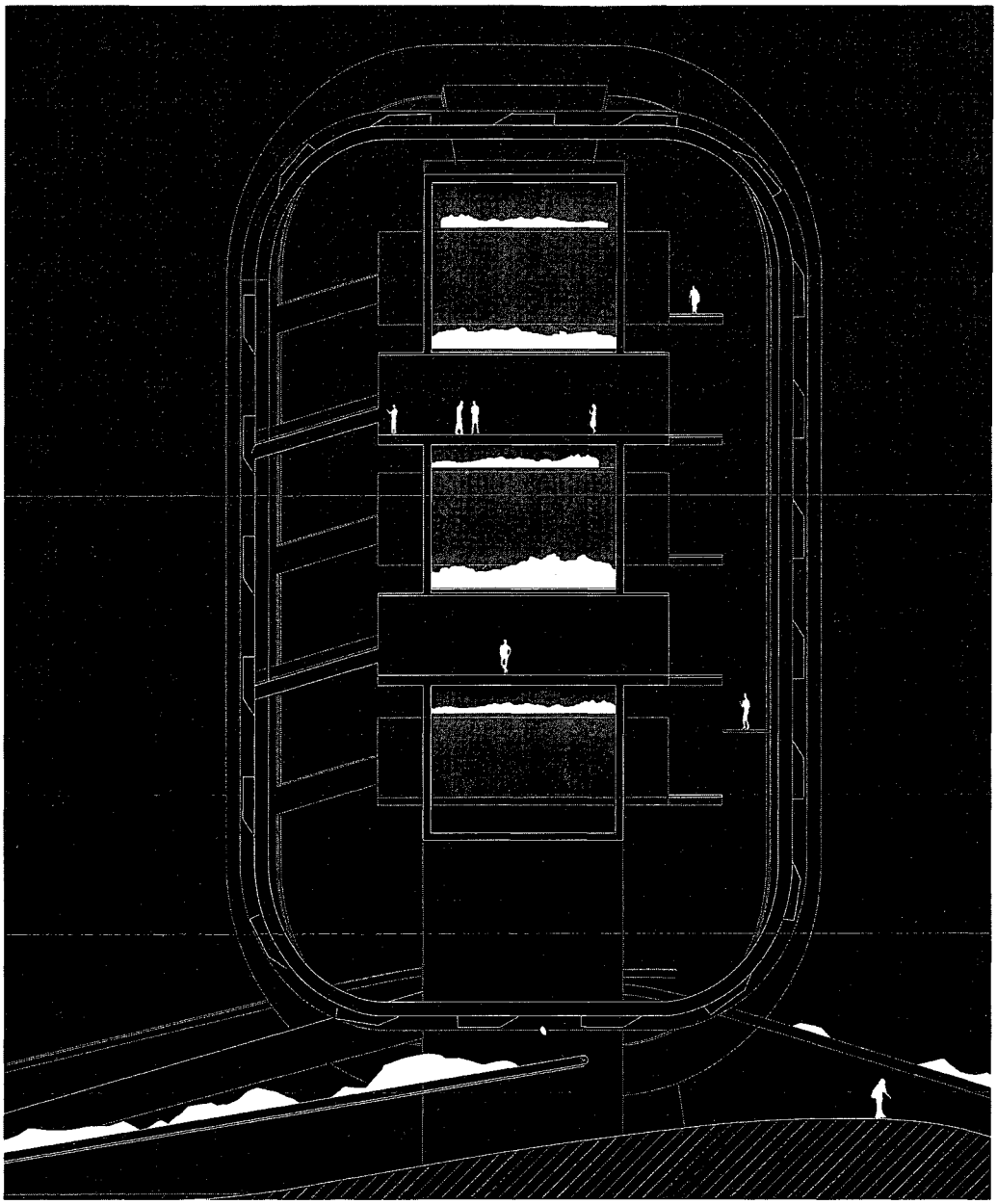
MACHINE 1

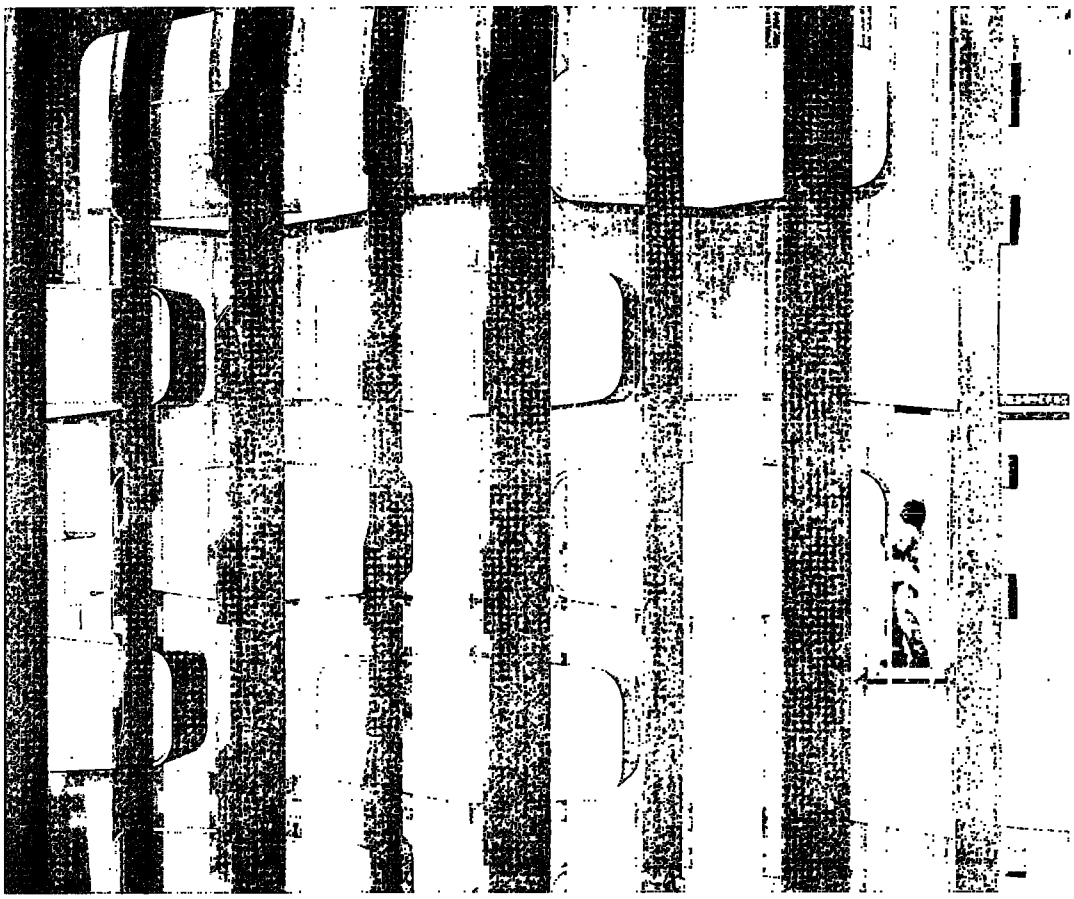
Apartments of Continuous Digestion

Conventionally the beginning node of the waste stream and the wasting of consumables, the home becomes a site of continuous processing of organic material, a machine for both living and processing. The home, that most private of spaces, is here the most public of incisions in the waste stream. Waste from the scale of a small neighborhood is brought to the house, sent up its enveloping bucket conveyors and deposited into the interior shell of the building, resting on top of the cellular residences of inhabitants. The organization of a Peabody vertical bioreactor is taken as an organizing principle, where organic waste travels down a zig zag path until it is released at bottom as compost. The machinery of waste processing is brought into a close intimacy with the private space of the home, implicating the residence in the larger entanglements of shared waste making. The house becomes a new edge, an edge of a city whose inhabitants are closely entangled and hence inextricably public, even in the most private of settings.



A knot of circulation: residents of the apartment of continuous digestion enter alongside inward and outward moving trajectories of waste. Loops of large bucket conveyors lift organic waste into the vertical bioreactor embedded within the shell of the apartments. Smaller bucket conveyors send non-organic waste back out into the waste stream, embedding the node of the apartments within a larger network of waste processing.





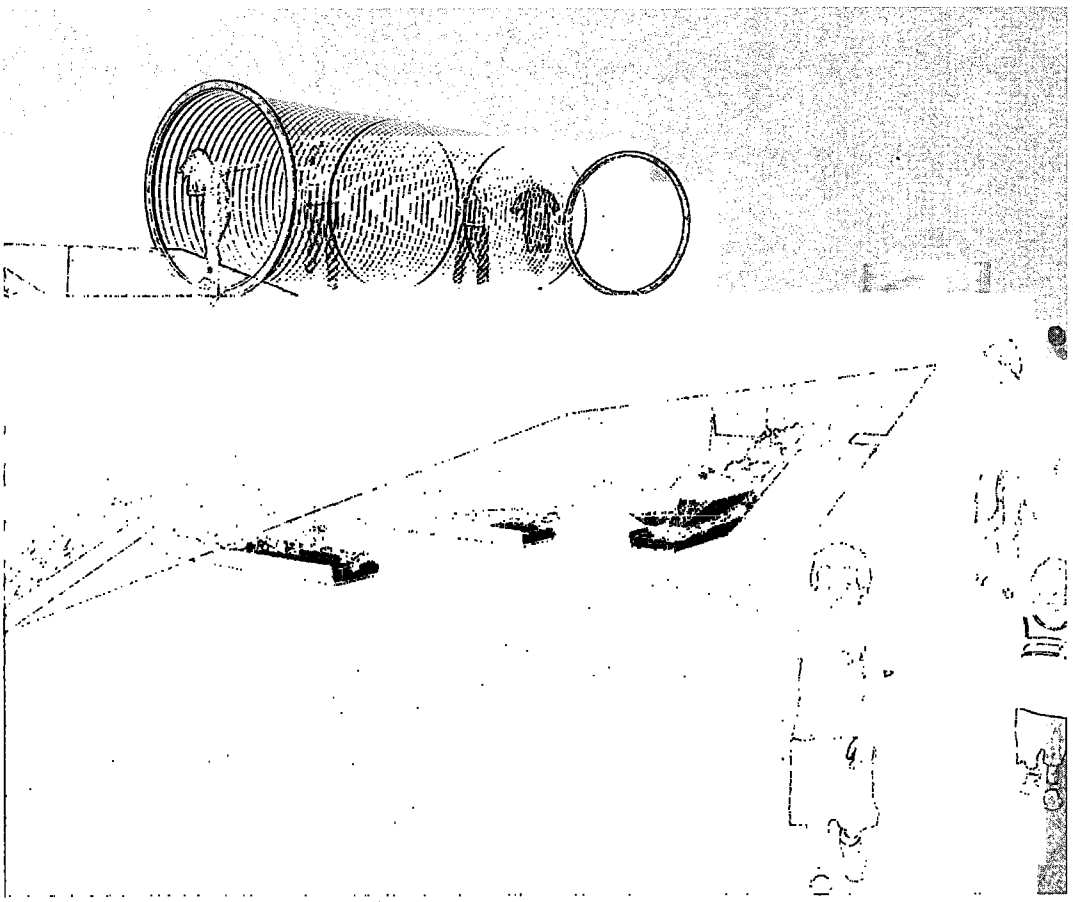
The machine for living. The outer circulatory structure of bucket conveyors turns waste around the living cells. The whirr of motion and the warmth of walls is a reminder that the infrastructure of waste is always working. Entropy never stops.

Organic waste falls in a zig-zag motion down a series of steps, exposed to circulating air that encourages its further breakdown into compost. The apartment is nested within these steps, bringing into close proximity the machinery of daily life and the machinery of decomposition.

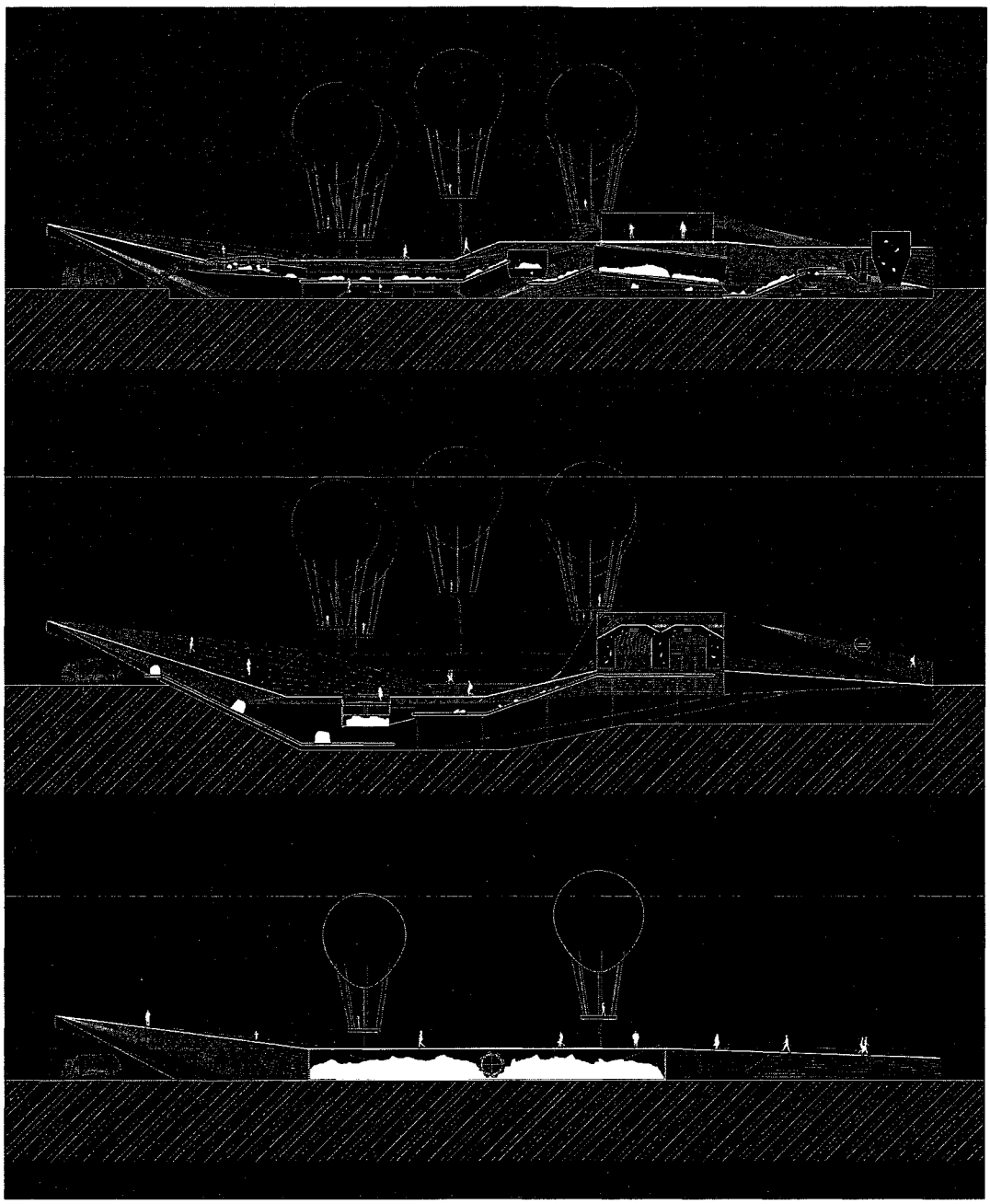
MACHINE 2

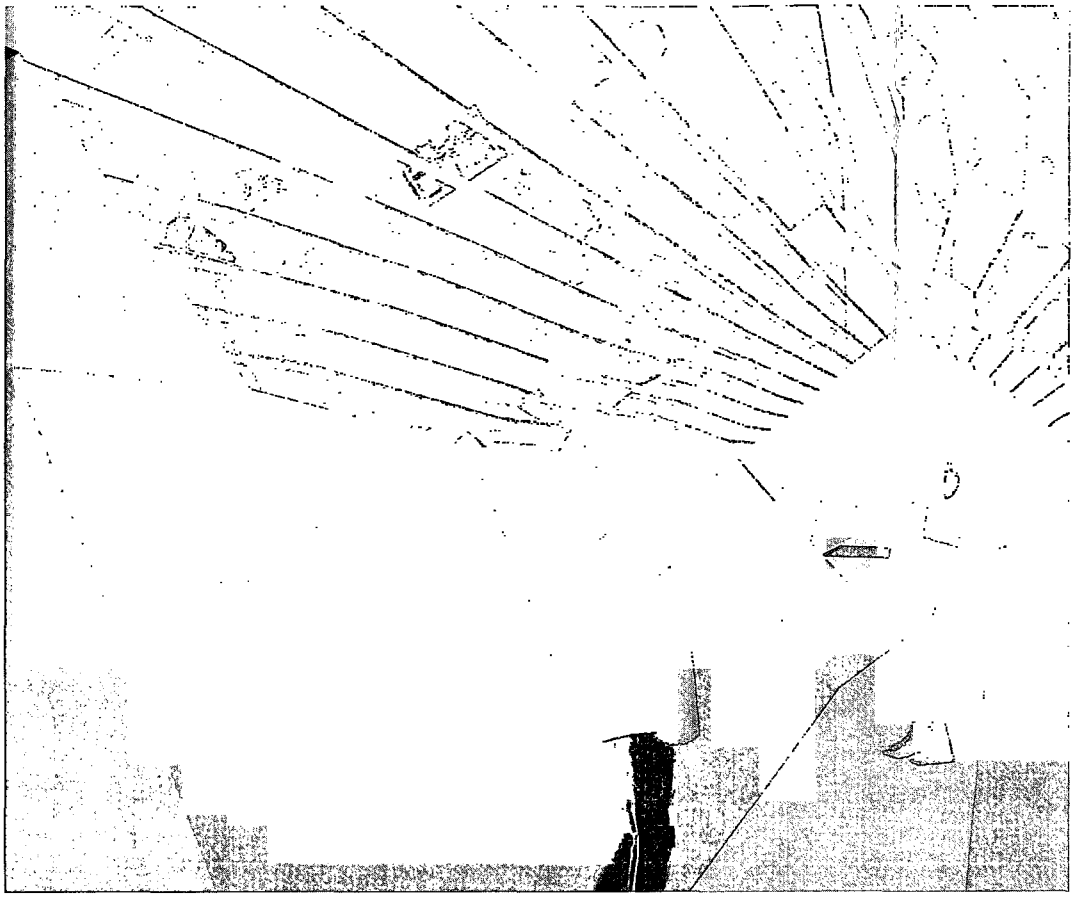
Materials recovery playground

The waste filtration playground occupies an intermediate node of transfer, drawing in unsegregated municipal solid waste and filtering out its components for recycling, reuse, composting or other trajectories. Learning from the organization of a materials recovery facility, the surface membrane of the playground meets the machinery of waste processing, allowing users to activate processes of loosening, turning and compacting waste through activities of jumping and running. Waste segregation and processing are brought into a sensory experience of play, bringing into close relationship the poetics of waste processing with the activities of daily life.

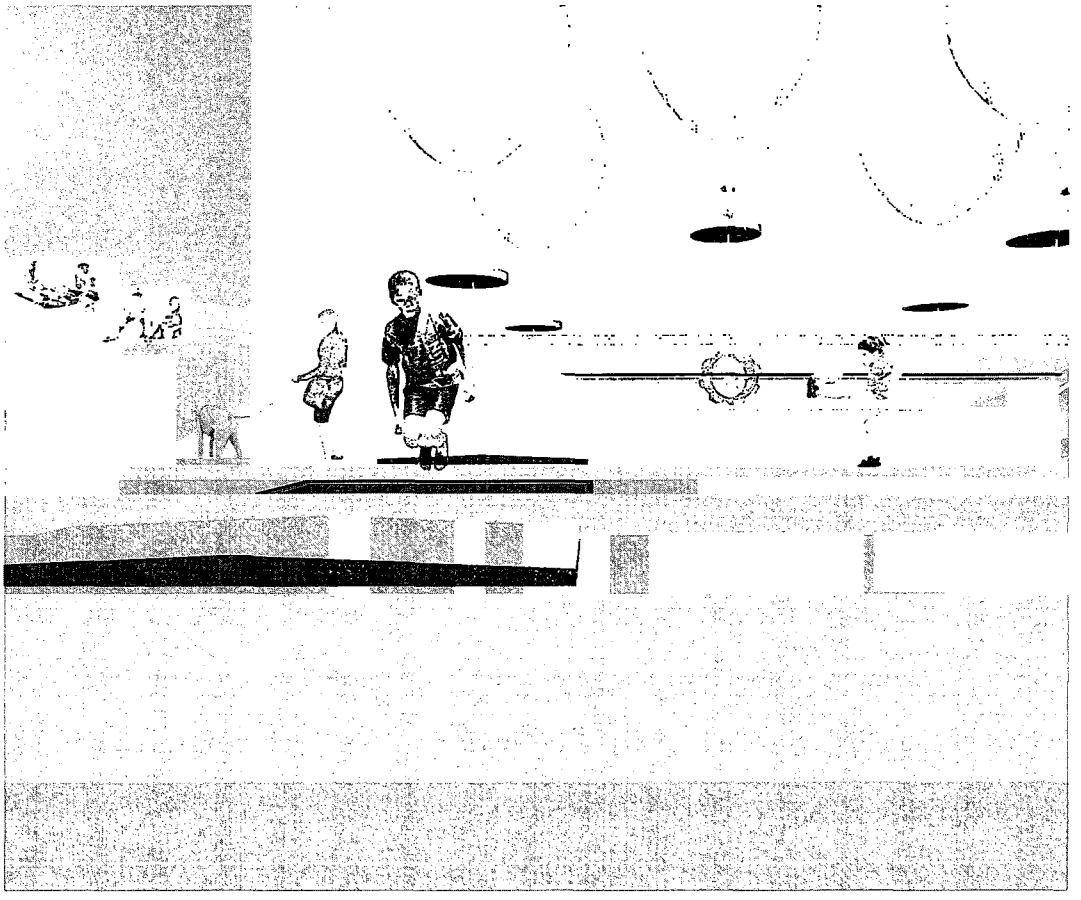


Early in the process of waste segregation, runners turn a large cylinder, activating the rotating trommel screen sifting device below. The playground surface pulls downward to reveal the process to pedestrians, making visible the mediation place between the process of waste segregation and the public experience of play.

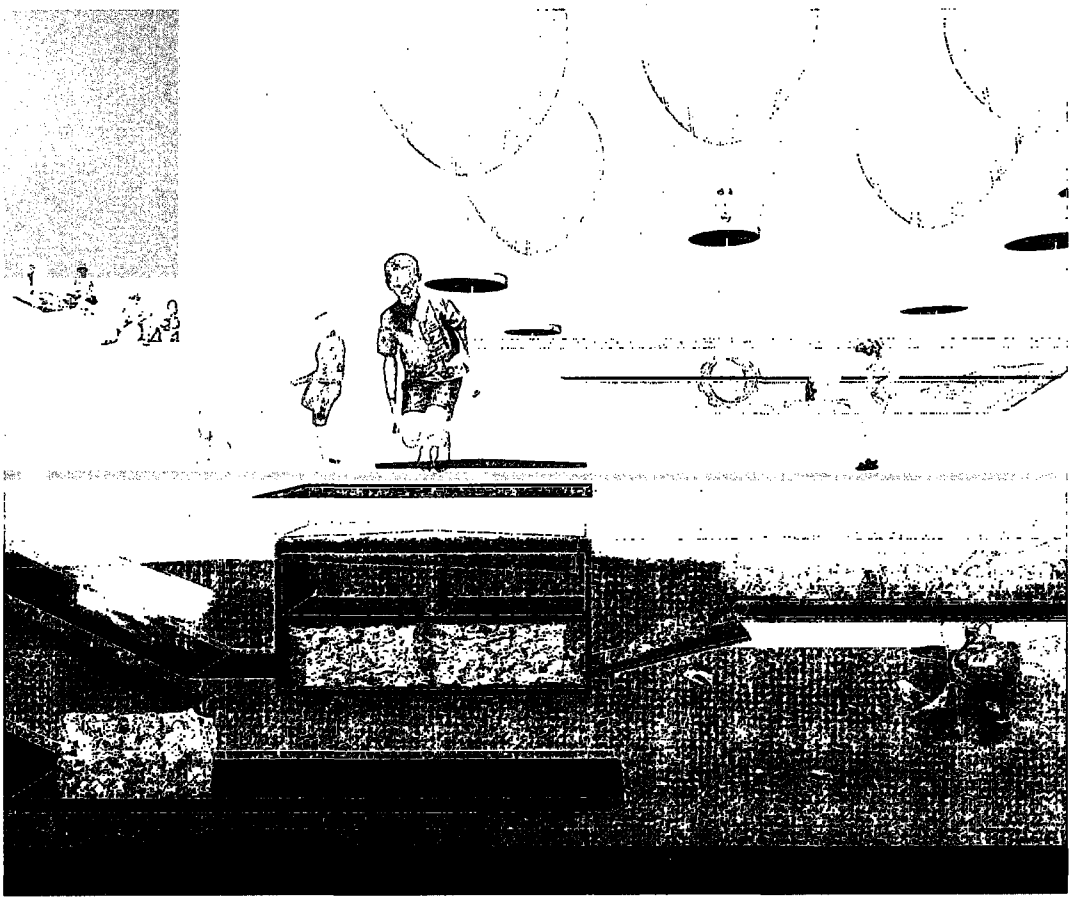




Following their sorting into types, recyclables fall onto conveyors below, activating tubes that relay sound to pedestrians below. Passage of waste and public circulation are closely juxtaposed, their friction marked by the sound of objects traveling into new domains of use.



Surface as mediation: trash compaction activated by jumping. Following a number of steps of segregation from municipal solid waste, recyclables travel beneath the surface of the materials recovery playground into a point of contact or play above.



Users jump on a protruding surface, activating a compactor below. The user sinks with the lowering surface of the compactor, secondarily sensing the force and sound of crushing beneath their feet.

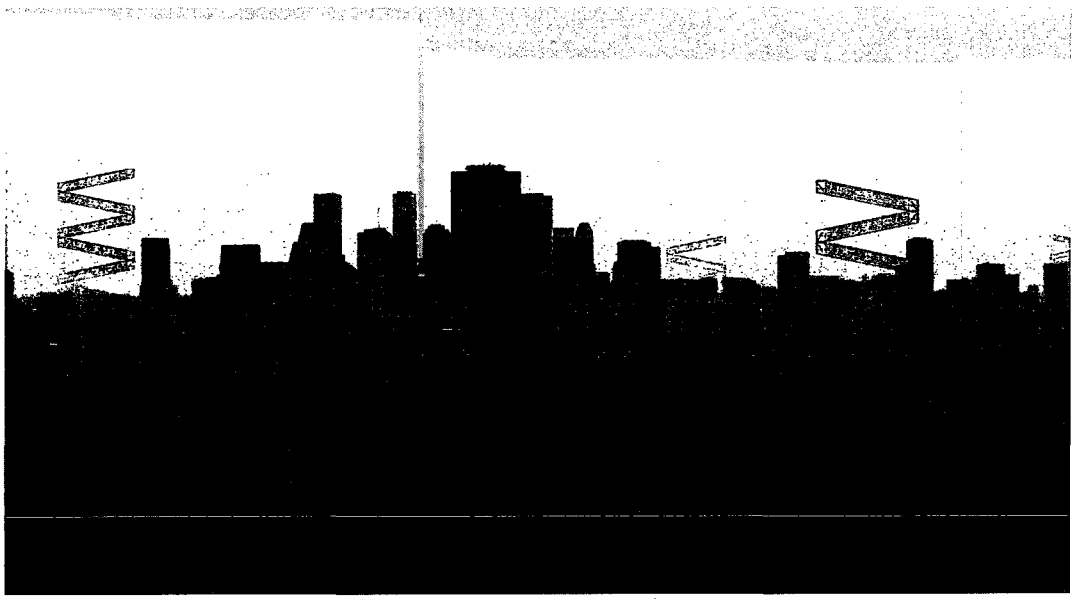
MACHINE 3

Monument of the unwanted

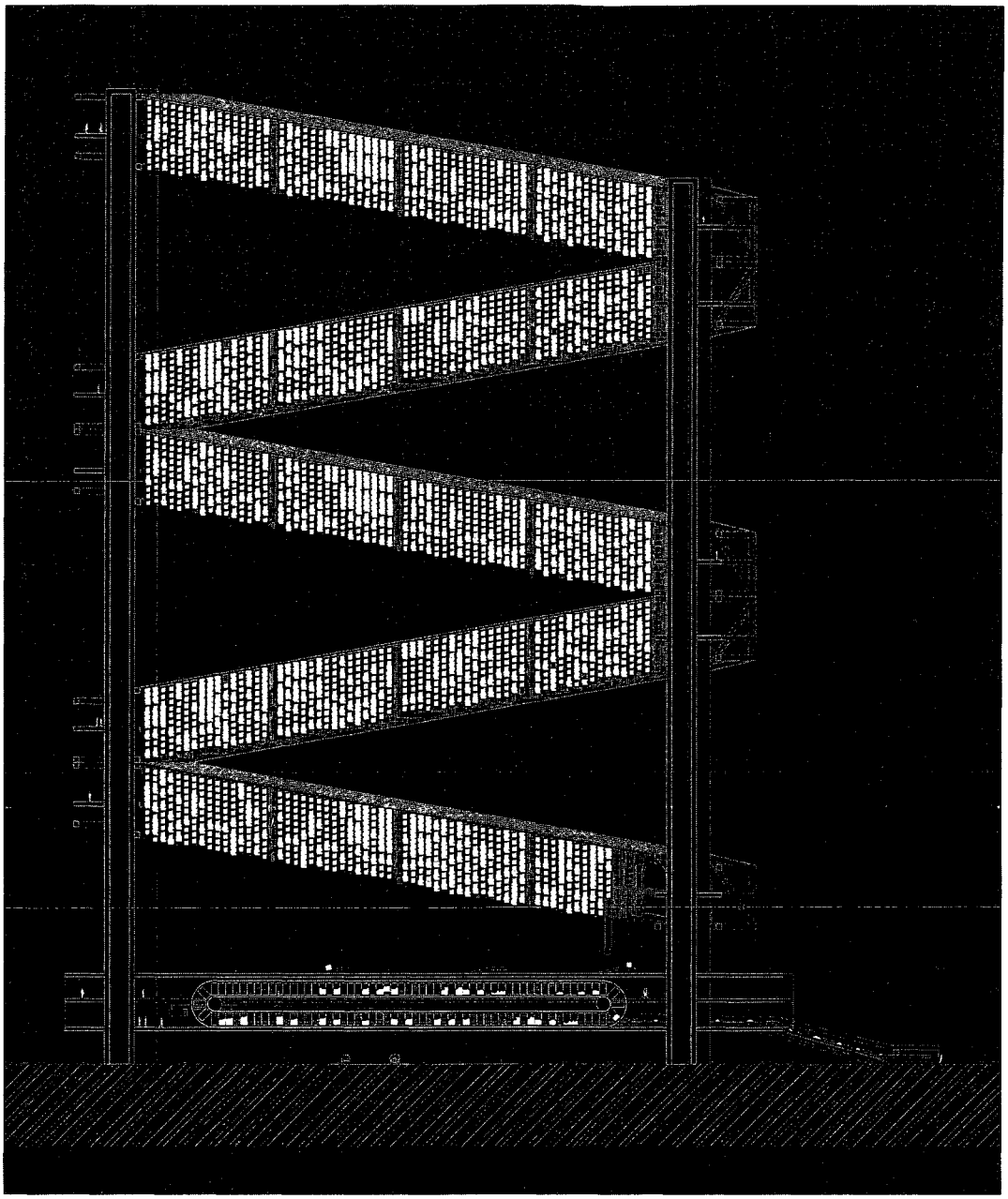
The monument of the unwanted, learns from the garbage bin and the culture of reuse, replacing what is normally the end of the line for waste with an active zone circulation and subtle eruption.

The base of the monument functions as a drop off point for for all that is unwanted and cannot be recycled or composted. Two kinds of transfers in ownership, use and temporality comprise the assemblage of the monument. In the first, the waste bin, normally a point of passage for trash, becomes a container for the indefinite storage of unwanted inert waste. Clear containers filled by households are brought to the monument to be stored. Junk is also brought to an exchange center by local residents. Unwanted junk is placed in a large wheel, making it available for re-use by those on the other side of the wheel. The wheel turns daily, advancing the unwanted of the unwanted to a level above where it will be compacted.

Compacted trash joins the storage bins, lifted up into columns of waste that populate a large truss. When filled up, the truss is lifted upward to make room for a new, empty storage truss. The filling in of the structure and the growth of the monument become an index of collective consumption and waste making, occupying a significant peripheral register in a new urban landscape of waste processing.

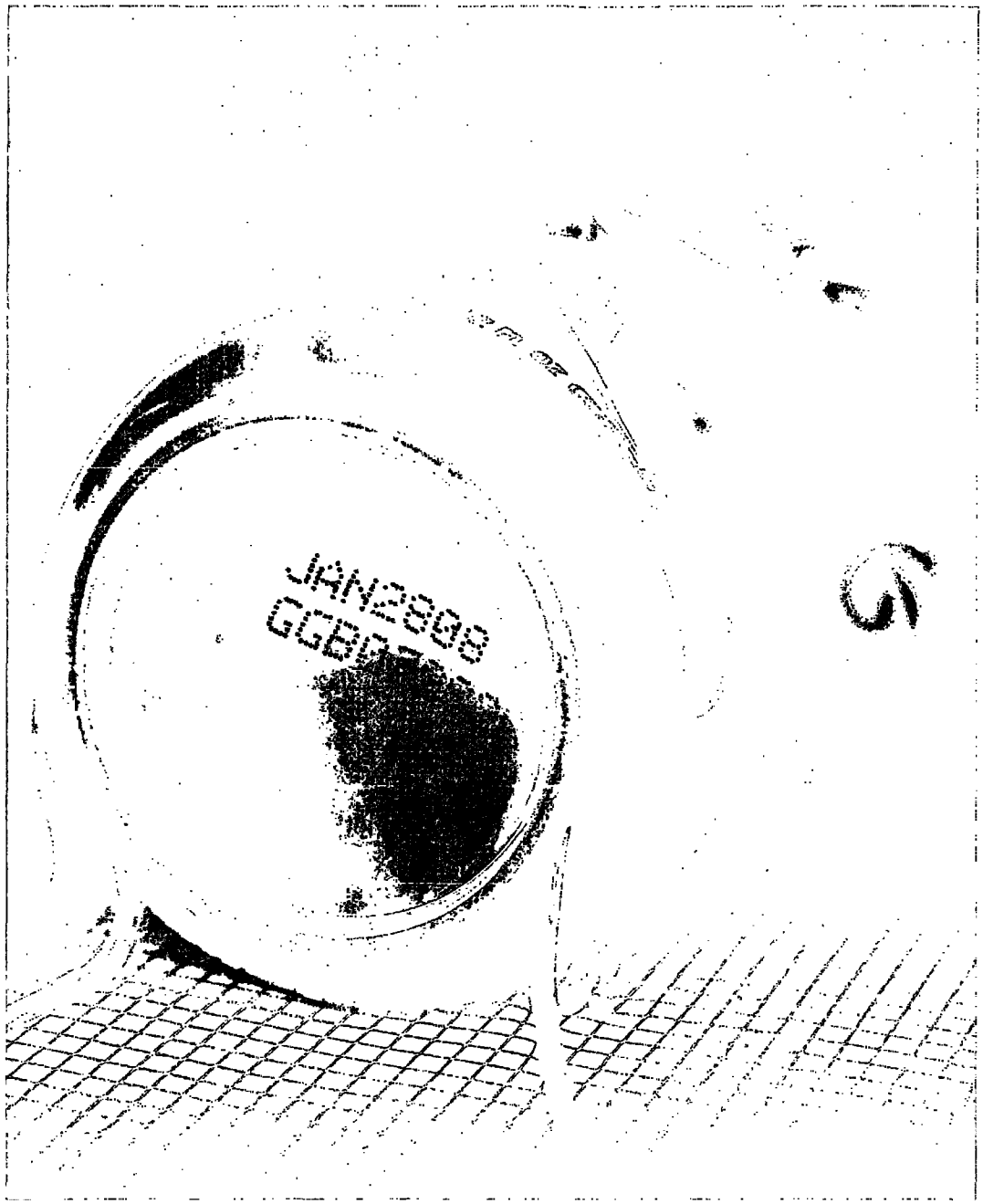


The new landscape, always under construction. Monuments of unwanted junk rise up around the city, their growth indexing both the amount of junk produced and what counts as junk in a given social milieu.

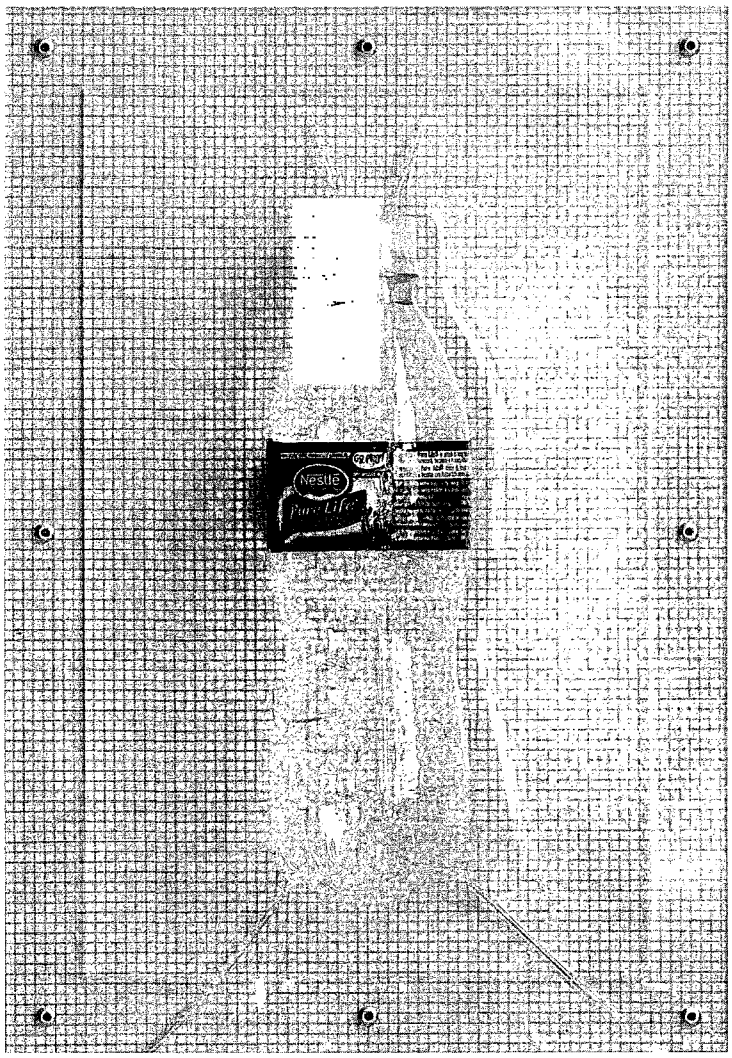


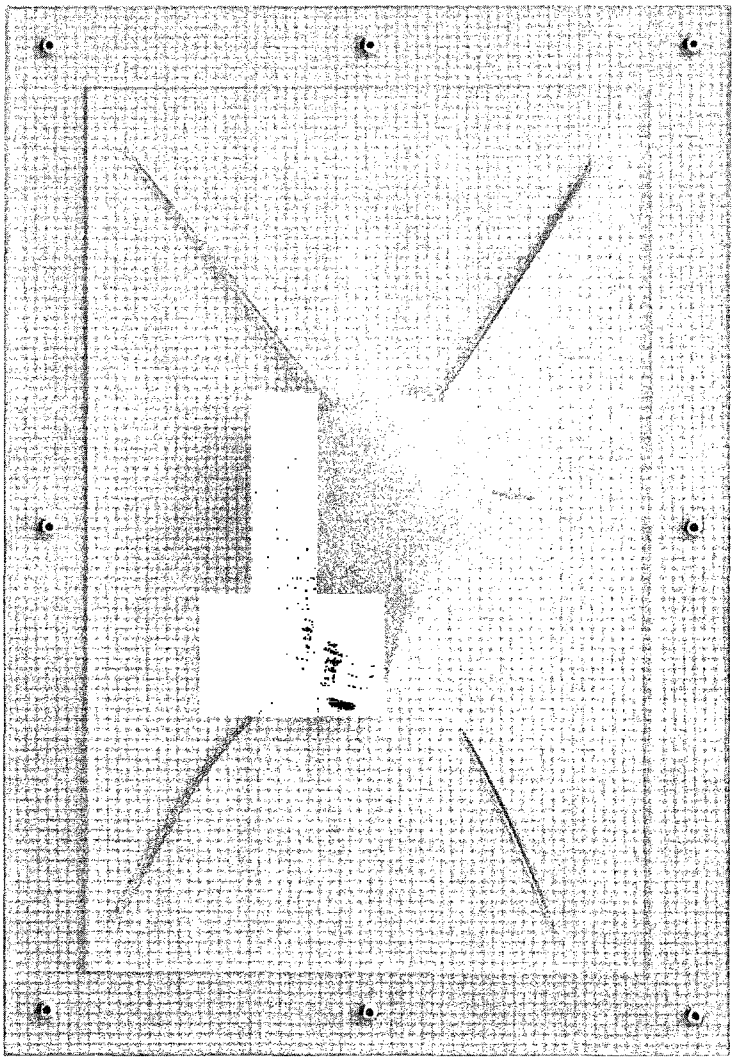
Inside the monument. All that is unwanted and useless to material recovery finds its ultimate resting place in the dense accumulation of the monument. Dissonant wasted objects find common ground in the transparent containers and compacted cubes of the city's junk, making available what were once objects of private use and possession to memory and public consciousness.

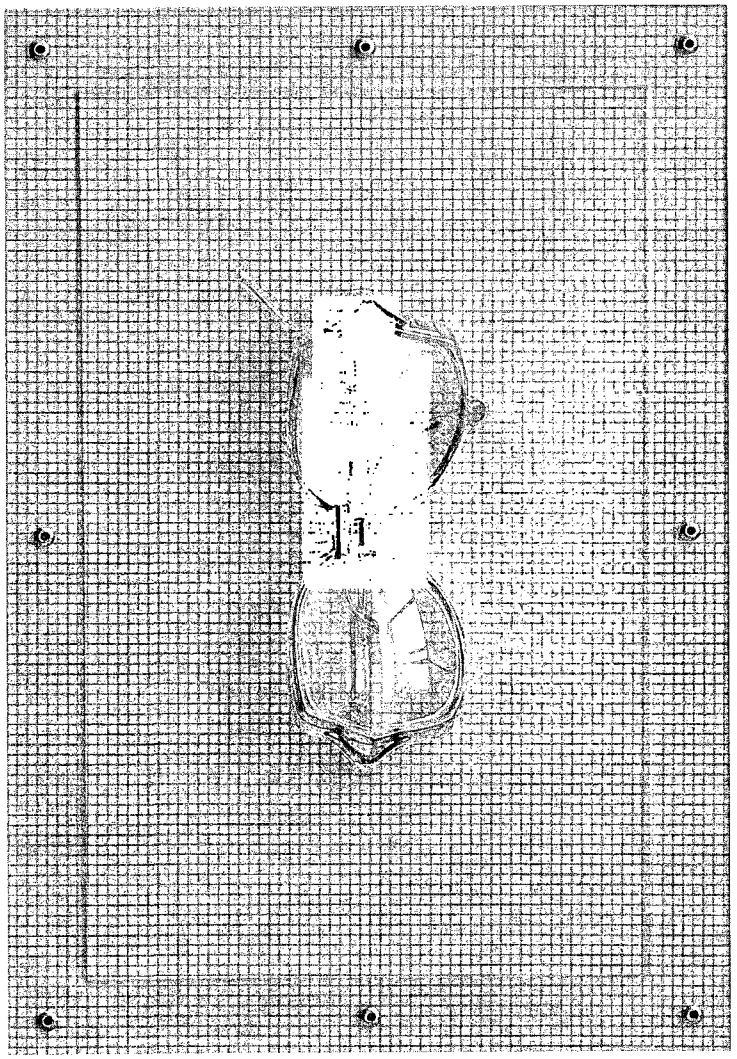
10 OBJECTS

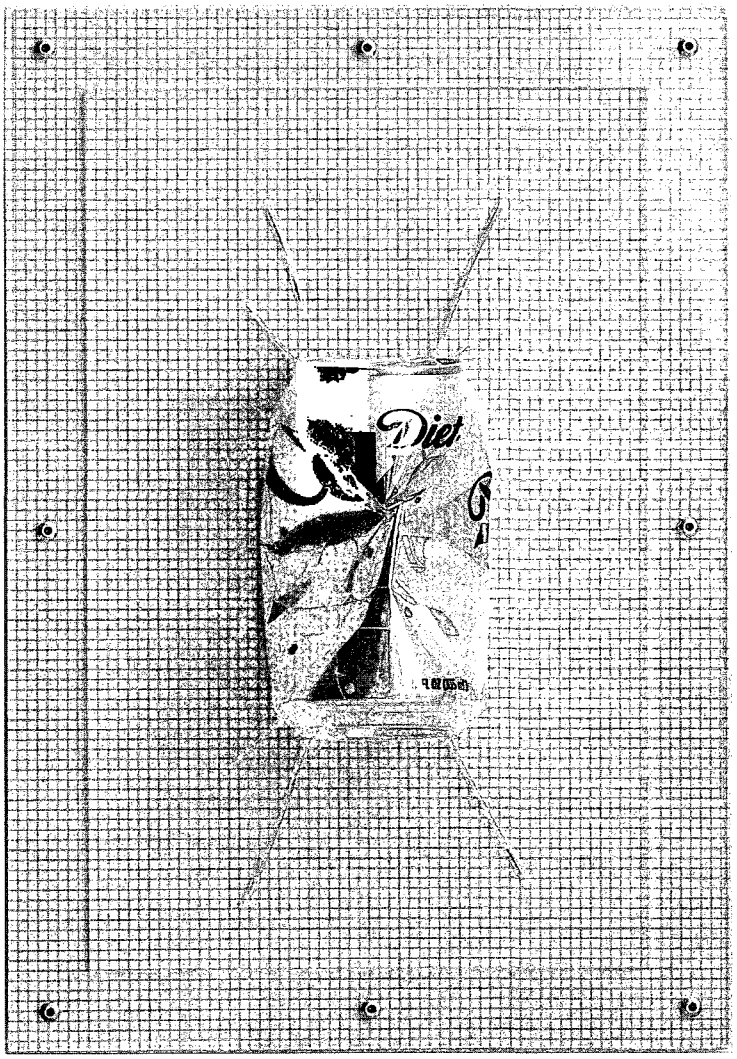


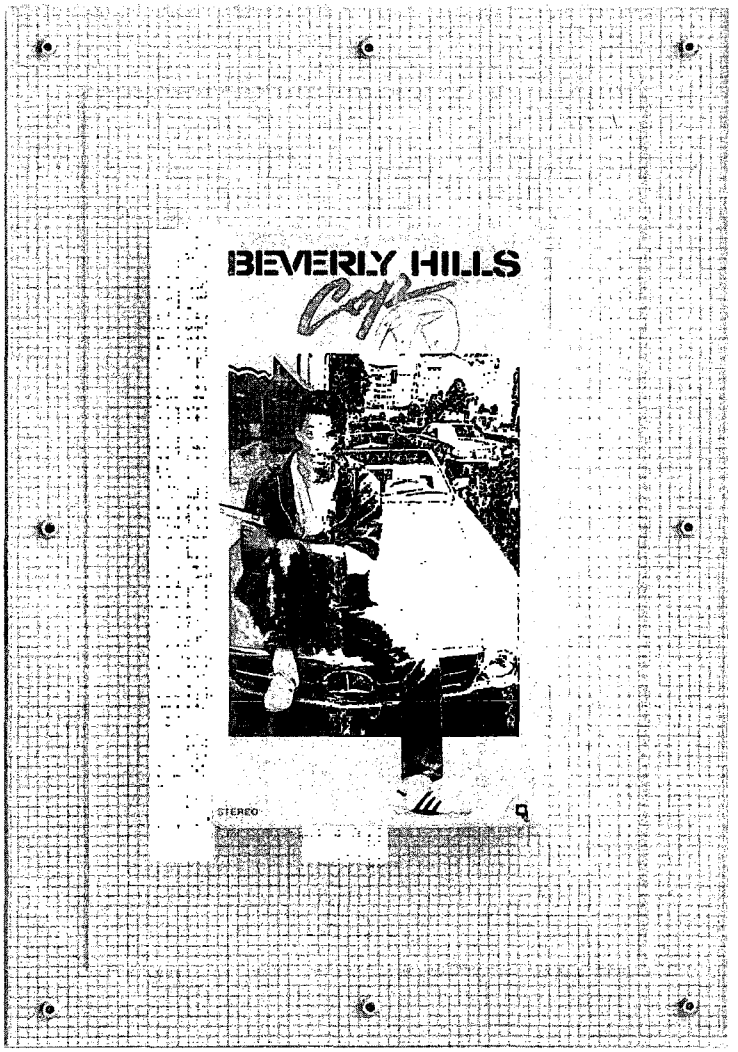
How do the membranes that contain wasted objects mediate our encounter with these objects? In what ways do the membranes of enclosure or processing within the waste stream trouble or reaffirm notions of public or private responsibility over the consequences of waste production? Comprising a spectrum of material qualities and social uses, unwanted articles are sealed in vacuum formed plastic, bringing the object of waste into suspended engagement with the user. Produced for final presentation of "Making Waste Public," to be distributed.

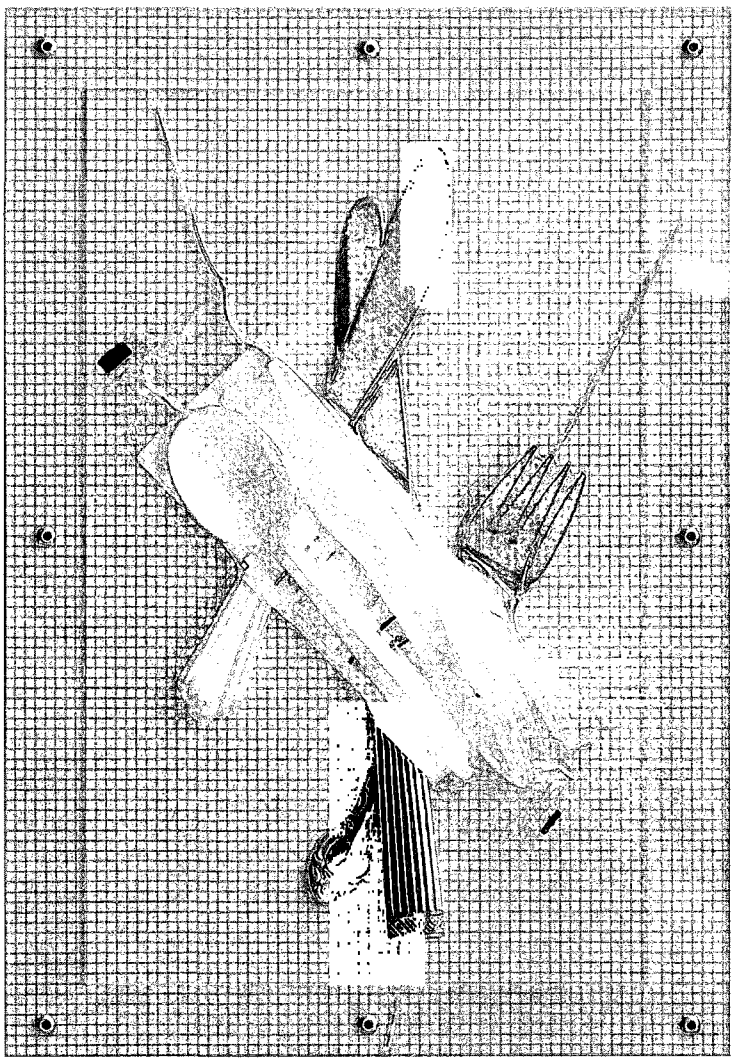

Nestlé
Pure Life



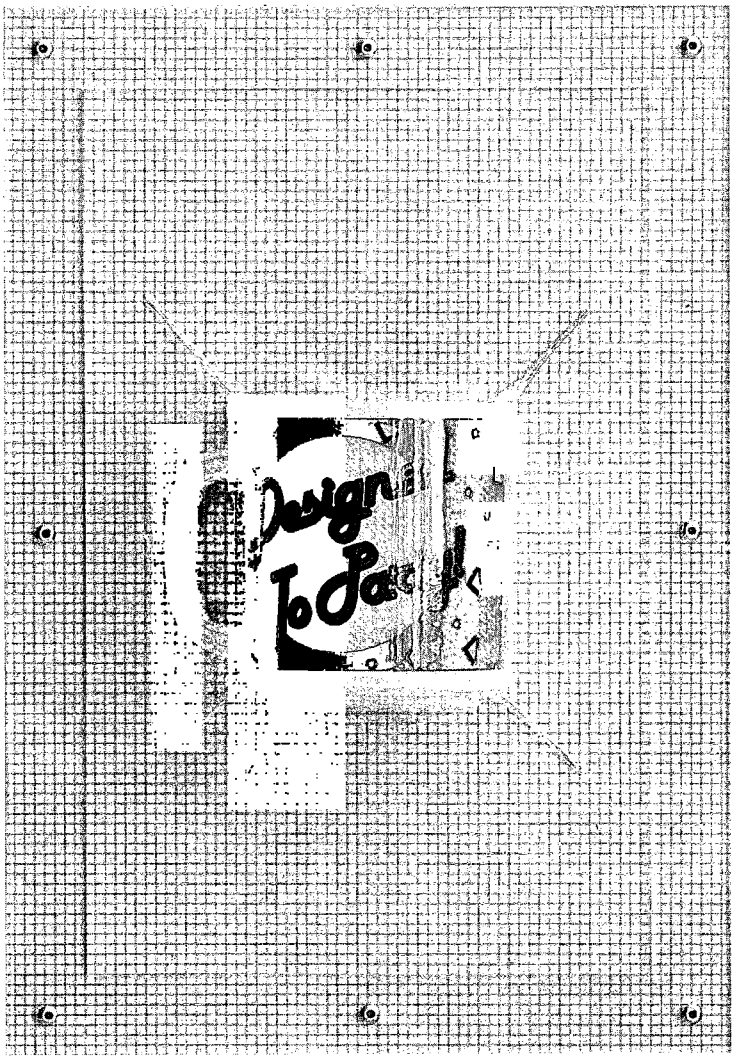


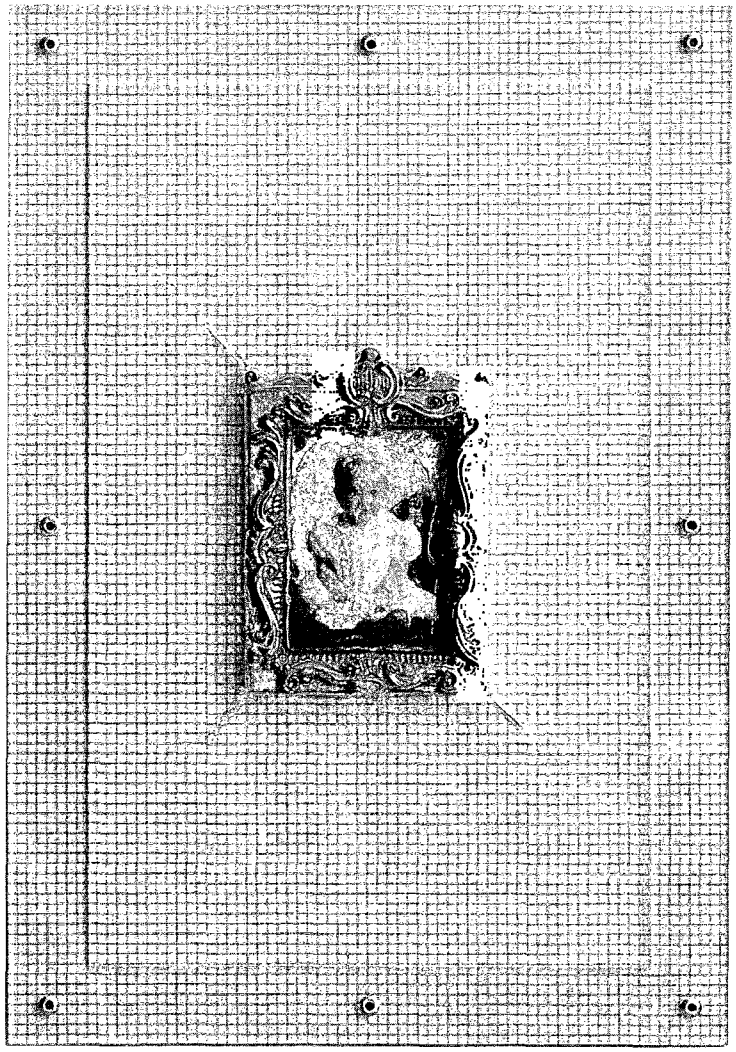

Diet

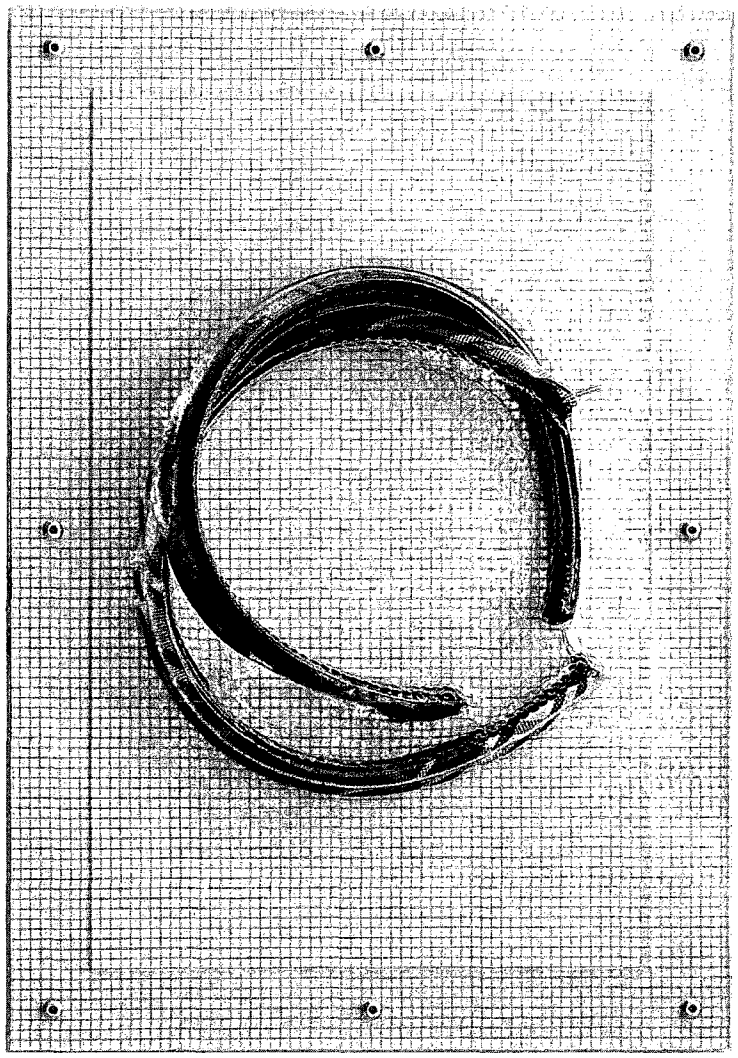

BEVERLY HILLS
Cop
STEREO



lexicon


Design
To Pa





BIBLIOGRAPHY

http://houston.metblogs.com/archives/2006/12/what_is_stealin.phtml

Ábalos, Inaki and Herreros, Juan. *Abalos & Herreros, 2G*, no. 22. Barcelona: 2G, 2001.

Ábalos, Inaki and Herreros, Juan. *Areas of Impunity/ Areas de Impunidad.* Barcelona: Actar, 1997.

Ábalos, Inaki and Herreros, Juan. "Pianta de biometanización y compostaje = Biomethanation and composting plant, Pinto, Madrid." *Quaderns d'arquitectura i urbanisme* 2003, n.239, p.[180]-187.

Ábalos, Inaki and Herreros, Juan. *Recycling Madrid.* Barcelona: Actar, 2001.

California v. Greenwood, 486 U.S. (internet) (1988)

Chakrabarty, Dipesh. Of Garbage, Modernity, and the Citizen's Gaze. *Economic and Political Weekly,* Vol. 27, No. 10/11 (Mar. 7-14, 1992), pp. 541-547

Deleuze, Gilles and Felix Guattari. *A Thousand Plateaus.* Minneapolis: University of Minnesota Press, 1987.

Dewey, John. *The Public and Its Problems.* Ohio University: Swallow Press, 1927.

El Khoury, Rodolphe, "Polish and Deodorize: Paving the City in Late-Eighteenth-Century France," *Assemblage*, No. 31 (Dec., 1996)

Engler, Mira. *Designing America's Waste Landscapes* (Baltimore: Johns Hopkins University Press, 2004)

"Five Points for a New Architecture." http://caad.arch.ethz.ch/teaching/nds/ws98/script/text/corbu.html

Furtado, Jorge, Dir. *Ilha Das Flores*. http://www.hurluberlu.com, 1989.

Gal, Susan. "A Semiotics of the Public/ Private Distinction, *Differences*, 13.1, (2002): 77-95.

Graafland, Arie. *Architectural Bodies*. Rotterdam: 010 Publishers, 1996.

Habermas, Jurgen. *The Strucutral Transformation of the Public Sphere, An Inquiry into a Category of Bourgeois Society.* Cambridge: MIT Press, 1991.

Hiriya in the museum : artists' and architects' proposals for rehabilitation of the site. Tel Aviv : Muze'on Tel Aviv le-omanut, [1999]

Kaviraj, Sudipta. "Filth and the Public Sphere: Concepts and Practices about Space in Calcutta." *Public Culture* Volume 10, Number 1.

Kreith, Frank and George Tchobanoglous, *Handbook of Solid Waste Management.* McGraw-Hill Professional; 2 edition, 2002.

Koolhaas, Rem, ed. *Content.* Koln: Taschen, 2004.

Larkin, Brian. *Signal and Noise: Media, infrastructure and urban culture in Nigeria.* Durham: Duke University Press, 2008.

Latour, Bruno. "Atmosphere, Atmosphere." entry to Olafur Eliasson catalogue, ed. Susan May.

Latour, Bruno. "There is No Terrestrial Globe," in *Cosmograms*, ed. Melik Ohanian (New York: Lukas and Sternberg, 2005), 217-218.

McHurty, Eileen Maura. "From NIMBY to Civil Rights, the Origins of the Enviornmental Justice Movement," in *Environmental History* 2, (July 1997): 305-14.

Melosi, Martin V. *Garbage in the Cities; Reuse, Reform, and the Environment.* Pittsburgh: University of Pittsburgh Press, 2005.

Melosi, Martin V. *The Sanitary City: Urban Infrastructure in America from Colonial Times to the Present. Creating the North American Landscape.* Baltimore: Johns Hopkins University Press, 2000.

Mitchell, Timothy. "The Stage of Modernity," in *Questions of Modernity*, Mitchell ed. Minneapolis, University of Minnesota Press, 2000

Miller, Benjamin. *Fat of the Land, Garbage of New York, The Last Two Hundred Years.* New York: Four Walls, Eight Windows, 2000.

Pawley, Martin. "Garbage Housing." *Architectural design*, 1973, v. 43.

Ponte, Alessandra. "Garbage Art and Garbage Housing." *Log*, 2006 Summer, n.8, p.99-111

Rabinow, Paul. *Anthropos Today: Reflections on Modern Equipment.* Princeton:

Princeton University Press, 2003.

Rappaport, Nina. "Shopping in reverse [Maag Recycling, Winterthur]." *Architecture* 2005 May, v.93, n.5, p.58-63.

Rogers, Heather. *Gone Tomorrow, The Hidden Life of Garbage.* New York: The New Press, 2005.

Scott, Fleicity D. "Involuntary Prisoners of Architecture." *October.* Fall 2003, No. 106, Pages 75-101.

Sloterdijk, Peter. "Foreword to a Theory of Spheres." In *Cosmograms*, ed. Melik Ohanian, 223-240. New York: Lukas and Sternberg, 2005.

Sorg, Thomas J. and Hickman, Lanier jr. *Sanitary Landfill Facts*. Washington: US Bureau of Solid Waste Management, 1970.

Sundaram, Vivan. *Trash*. New York: Sepia International, 2008.

Tierney, John. "Recycling is Garbage," The New York Times, 30 June 1996, (internet).

Zaera Polo, Alejandro. "The Politics of the Envelope: A Political Critique of Materialism." *Volume*, 2008, v. 17,

Zardini, Mirko. "Surface of the City: The Ground of the Modern City and the Preponderance of Asphalt," in *Sense of the City: An Alternate Approach to Urbanism, ed*, Mirko Zardini. Montreal: CCA, 2005