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The Life and Times of Landfills

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Cover Page Footnote

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CRIB NOTES

The Life and Times of Landfills



JOSHUA O. RENO

ABSTRACT

American landfills are primarily understood as distinctly human and spatial creations, when in practice they are as much temporal as spatial and as much non-human as human. Based on a large landfill on the rural periphery of Detroit, this paper explores the emergent and polychronic forms of life fostered by controlled dumping. Landfill employees work with their ecological surroundings to satisfy regulatory directives and assemble ever-growing mountains of waste. The paper introduces the complex, practical negotiations that result by isolating and diagramming the distinct temporal scales at which nonhuman beings and powers aid in and disrupt the process of landfilling.

INTRODUCTION

Landfills are primarily defined by their relationship to space. Other names for waste disposal describe a technical procedure (recycle, compost, incinerate), whereas the American sanitary land-fill and the British equivalent closed tip, call to mind *land* that has been opened, *filled* with waste, and *closed* back up again. The value of a landfill is calculated in terms of abstract air space that has not yet been filled. The companies that own landfills earn capital if waste workers can squeeze more waste into less area. It is also in terms of space that landfills are contested and regulated by agents of the government. Regulations focus on potential leakage into the surrounding area. When leaks occur, landfills may face financial penalties and possible closure if the problem cannot be mitigated. People resist the proximity of landfills to their communities, hence the use of the term “Not in My Backyard” (NiMBY) to call into question the motives of anti-landfill activists. Environmental justice advocates have demonstrated

that landfills and dumps are disproportionately located in spatial proximity to people of color (Pellow 2007).

While landfills are clearly spatial, I examine in this essay how they are also practically managed and politically contested in relation to time. I rely primarily on my time working for nine months as a laborer at a large landfill in Southeastern Michigan, which I call Four Corners. I discuss how landfills partake of multiple temporal scales—making them difficult to regulate and run. This polychronicity would be present, furthermore, even if a different approach to waste eventually were to replace widespread dependence on landfills in North America.

Taking into account multiple timescales reveals the constitutive role in waste management of non-human beings and other forces. In what follows,

I combine images with text to depict how other beings and forces co-construct waste landscapes that tend to be attributed solely to humans. By describing the polyrhythms of these landscapes, following Anna Tsing (2014: 34), it becomes clear that the practical arrangements and dynamic interactions that humans set in motion give way to more-than-human processes.

WHAT IS A LAND FILL?

There are three basic ways to dispose of waste: burn, dump (in the ground or in water), or compost. All of these forms of disposal have existed for millennia, in some form, but the sanitary movement that began in the nineteenth century profoundly changed how they were evaluated and adopted by government planners and engineers. Sanitary landfills became widespread throughout Euro-America after the World Wars because they represented a cheaper and simpler method of eliminating waste than did the existing alternatives—specifically waste reduction and incineration. With the rise of the modern environmental movement, these short-term goals now appear to come at the sacrifice of long-term goals. One need not be an environmentalist to regard the disposal of waste as a misuse of resources. My employers and coworkers at Four Corners, who made money from the disposal of other people's waste, tended to support reuse and recycling as preferable options.

The risks posed by landfills came into popular awareness with the infamous Love Canal disaster of the 1970s, where a leaky landfill created by a chemical manufacturer was held responsible for a cluster of health problems and birth defects in Niagara Falls, New York. The toxicity of landfill contents changes relative to government regulations and scientific knowledge. However, toxicity is not merely a social construction—it is a material consequence of industrial practices, one that has real impacts on human and environmental health. In the words of Rob Nixon (2011), toxicity is best understood as a form of slow violence that is disproportionately borne by the poor and disadvantaged.

In one sense, landfills are human creations that pose a risk to non-humans and humans in their vicinity. The process of repeatedly adding to an existing landfill can be graphically depicted like in the diagram below (see Figure 1).

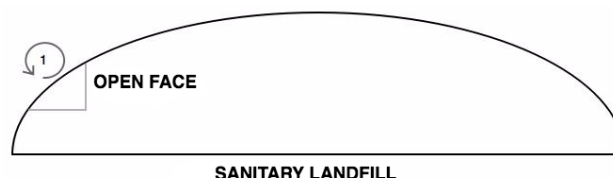


FIGURE 1.

The cross-section depicted on the left side is what is known as the open-face: the section temporarily exposed so that more waste can be added. The number signifies that this is one kind of familiar temporal cycle, and the one that is first to come to mind for those who are familiar with landfilling as a method of waste disposal. This cycle (depicted by the familiar circular arrow) signifies the process whereby the waste disposed of is collected, transported and repeatedly added to the landfill, thus making landfills grow in size over time and eventually close when there is no more room to add waste to them. To the extent that human waste producers and workers are considered the sole agents involved in the creation of landfills, this image is complete. But there is much that this depiction of landfilling leaves out.

SPACEBUGS

Landfills never belong exclusively to the human species any more than do the diverse biomes of our guts belong exclusively to us. Inside each human body are invisible colonies of symbiotic, microbial messmates (Haraway 2008). As shown in Figure 2, this multispecies feast continues when that co-digested food passes through intestinal tracts and indoor plumbing and leaves for wastewater treatment facilities and landfills where the hungry cousins of gut microbes lie in wait.

Four Corners was an experimental bio-reactor landfill, which means that managers and workers

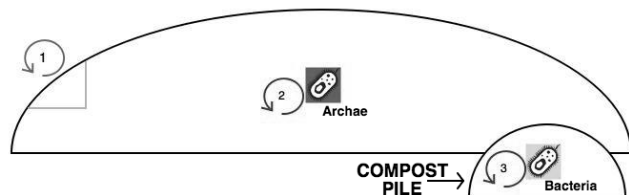


FIGURE 2.

constructed it to siphon the methane biogas excreted by methanogenic microbes (depicted in the center of the landfill under temporal cycle 2). The methane was moved via underground pipes to gas plants where it was converted into electricity and sold on the grid as renewable power. A select group of laborers worked with landfill managers and employees of the gas plant to raise the gas wells as the landfill expanded, to add to the network of pipes to increase gas collection, and to repair any wells and lines that the machine operators inadvertently damaged. It was necessary to maintain the gas field in this way, because methanogenesis never ceases: in theory, though not always in practice, biodegradable garbage will decompose whether or not there are operational wells to extract the biogas. Microbes may be impossible to see with the naked eye, but people smell evidence of their unseen activities. The odors of bio-reactivity were a source of great controversy in the area surrounding Four Corners and the management team directed a lot of efforts to eliminating and disguising these odors—as in the case of perfume lines set up along the perimeter ditch, depicted in Figure 3.

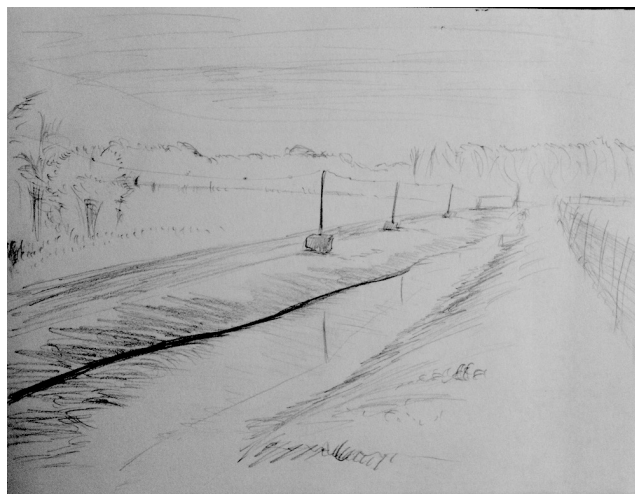


FIGURE 3.

Landfill employees use the microbes to promote more bio-reaction. Attempting to transform Four Corners into a bio-reactor has its risks. The landfill's sewage sludge contracts with Toronto and Detroit are a good example. Without the sludge, waste may break down very slowly; with it, organic degradation proceeds more quickly. But passing sewage hauling trucks upset residents when they spread odor or spill sludge on the roadside.

For landfill workers and gas plant technicians, attending to the microbes means being aware of their distinct temporal rhythms. One of the gas plant technicians, Leon, told me that the way in which the landfill managers were constructing the gas extraction field was placing too much stress on certain areas. Leon worried that this was speeding up decomposition but making the flow of methane to the plant irregular and unsustainable in the long term. Some wells were drying up before they ought to while others were overburdened. Leon believed that the landfill company took for granted the activity of the archae, or his spacebugs as he affectionately called them (in possible reference to claims that Earth's original archae may have hitched a ride on a meteorite). According to him, the landfill's managers believed they could exploit the gas field indefinitely without taking into consideration the timescales at which spacebugs operate.

Landfill workers were much more sensitive to the temporal rhythms of microbial life involved in the production of soil from composted green waste (depicted in microbial cycle 3 in Figure 2). My supervisor spoke proudly about his understanding of the bacterial process involved in the compost pile which, on account of the aerobic microbes they involve, need to be turned with machines to produce usable soil. Leon's criticism suggests that the same sensitivity to microbial temporalities was not applied within the landfill. Possible evidence of this fact came after I concluded working there, when a portion of the southwestern slope unexpectedly caved in and sludge began bleeding out from the open wound. Settlement typically happens gradually in most landfill bodies as the applied

skin of soil and grass gradually wrinkles and sags. If Leon is right, unstable settlement could result from overstressing the microscopic denizens of the landfill's gut.

MACROBIOTIC SPACE TIME

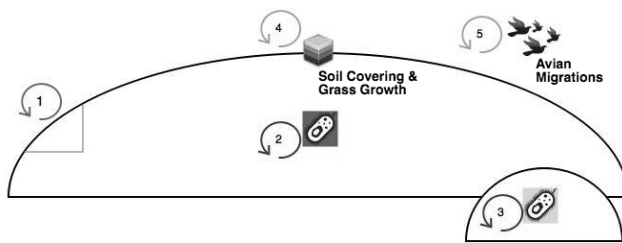


FIGURE 4.

Besides odors, visitors to landfills often notice the birds. Over the course of a year, landfills in Michigan are visited by flocks of seagulls, Canadian geese, starlings and crows. Some would appear with the change in seasons as they migrated (see temporal cycle 5 in Figure 4). Birds are such an accepted part of landfilling that most sites are limited in terms of how high they can grow based on the risk that ascending flocks might interfere with planes taking off and landing from nearby airports.

In other ways, the landfill's production relied upon seasonal rhythms that were involved in the growth of grass (cycle 4) by using the composted soil that was grown on site. The landfill supervisor, Big Daddy, hated the seagulls as much as he loved growing a good crop of grass. He did not like how they defecated on his expensive machines and worried that they might cause an accident. Big Daddy sought and received permission to shoot them for this reason. He would use steel shot in his shotgun in order to avoid raising the lead content of the site and risking environmental fines. When he managed to wound or kill a bird, Big Daddy would instruct laborers to leave it, in order to frighten the other gulls. But attempting to influence one organism in this way reverberates across other multispecies relations, encouraging other beings to respond in turn. Big Daddy's strategy also encouraged scavenging birds to visit the site when he would begin shooting, most notably bald eagles from the nearby

nature preserve. The eagles learned to begin flying over the landfill when he began shooting, as if he were ringing the dinner bell. The appearance of this endangered and symbolically prized bird clearly made him anxious. When we laborers came across a bald eagle corpse on the site (see Figure 5)—and rushed to tell him—he was clearly alarmed: “was it shot?” he demanded to know. The remains we'd found had not been shot, but this was the risk he took—which all land fillers take—by combining waste and bird management.



FIGURE 5.

THE GEOLOGY OF MORALS

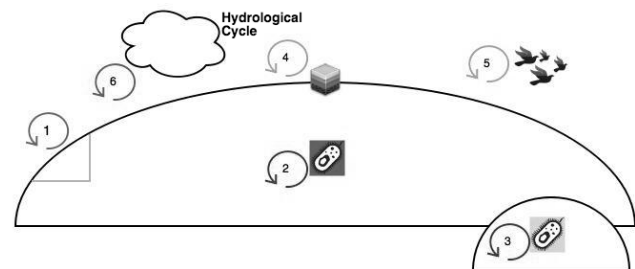


FIGURE 6.

Life forms may operate on short-term temporal scales (like the volatile microbial populations), or on more seasonal ones (like the grass and birds), but the forces of nature upon which these life forms all rely are slower, recursive and therefore difficult to observe directly. The hydrological cycle (see temporal cycle 6 in Figure 6) is part of the regulation of landfills insofar as retention ponds, ditches and tanks are often constructed to control the movement of water on and off site. But like the soils, the aquifers underground and the oxygenated

atmosphere above it are finite and in need of constant regeneration. Landfills interfere with these longer-term processes through their release of leachates and greenhouse gases.

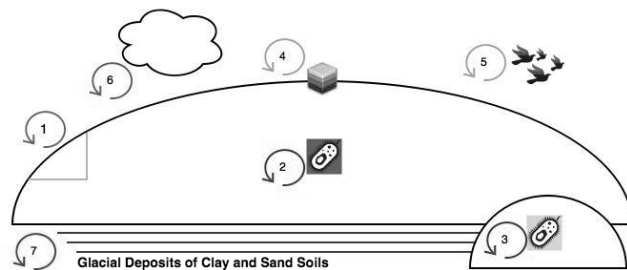


FIGURE 7.

Even more difficult to conceptualize, arguably, are the even older glacial depositions (see temporal cycle 7, in Figure 7) that generated the soils upon which landfills rest and which their workers and managers mold into useful shape. Long-term temporal rhythms make it difficult to immediately grasp the causal role of soils. Among landfill employees, soils were discussed very rarely and their causal role in landfilling was generally disregarded.

Four Corners Landfill was located in a small rural, Michigan township that I call Harrison. It was originally planned that Four Corners would be built in the whiter, wealthier community bordering Harrison to the east. But when this development faced local resistance, the landfill company purchased land from elderly farmers in the least populated plat of the township. Communities that attract landfills tend to lack the political and economic clout to keep them away. Harrison has historically lacked not only money and power, but people. One of the later areas of southeastern Michigan to be settled and established as a township, Harrison grew the least during the eastern and southern migrations of the ensuing centuries. It remained effectively empty in comparison to other communities—as if waiting to be filled with waste.

Yet the apparent emptiness of Harrison and other landfill host communities is the result of more than all-too-human representations. The causal power

of absences, related to nonhuman habits of self-ordering (Deacon 2012), have shaped Harrison's landfilled present. Eduardo Kohn (2013) describes such self-ordering as the ability for emergent habits of the world to be harnessed and amplified in overlapping ways. There existed in Harrison an irresistible tendency toward containment long before the intrusion of mass waste or even white colonization of the Midwest. The thick clay soils in the southeastern portion of the township contained water at surface level, which in the form of wetland was better also at containing life and thus allowing for the proliferation of more ecologically dense webs than are typical for the area. These glacial deposits are part of the Niagara Escarpment that stretches from Southeastern Michigan through Southern Ontario (temporal cycle 7). As an emergent habit in the world, this formal character of containment could be harnessed effortlessly or could be resisted with great effort.

The presence of swampland was a deterrent that causally shaped the relative absence of people in southeastern Michigan. This apparent emptiness eventually made it more attractive for landfill developers, who sought cheap land and a politically ineffectual population. The same durable habit of soil containment that is harnessed for landfilling today also helped make this part of Harrison more economically and politically susceptible to landfill development. Environmental injustice arises from relationships between poverty and institutionalized racism, but also involves non-human forces that constrain and condition the unequal distribution of affluent.

The managers at Four Corners routinely reference the naturally thick and impermeable clay soils underneath the site to provide extra assurances to members of the public and regulators that leakage is less likely, as if the landscape were destined for discards. The same durable habit of soil containment that is harnessed for landfilling today also helped make this part of Harrison more economically and politically susceptible to landfill development.

The effortless efficacy of Harrison's geology also complicates efforts to control the landfill's growth. To this day, it is as if the land around Four Corners is trying to return to wetland. Water begins to pool after hard rains and cattails—an indicator species for wetland—begin to sprout. When I worked there, managers tried to conceal this from regulators, for fear that the wetland would take away profitable air space and that they would be fined by regulators for damaging a protected multispecies landscape. Like protected bird species, cattails can get in the way of growing the landfill.

CONCLUSION

Decades of environmental critique and mitigation have established the sanitary landfill as a hateful symbol of anthropocentric arrogance. But this article seeks to provide a different conceptual framework for landfills. Landfills are multispecies landscapes in the process of formation and, as the cumulative product of activities inscribed upon the earth's surface, landfills offer a record of the past and a stage for future relations.

The politics of landfilled waste exert a creative influence on non-human lives and relations, and not only as a source of destruction and distortion. Multispecies landscapes have a design, their relations have a pattern, but it is an *unintended* and *contingent* design (Tsing 2014: 36)—one that can frustrate human ambitions and projects, as might seagulls, bald eagles, and cattails.

Political challenges to landfills are limited if they fail to recognize landfill landscapes as polychronic and multi-species. Since the turn of the century, many countries have sought to reduce or eliminate landfilling entirely. Increasingly, capped landfills are mined for rare minerals or methane. The ecological relations involved include not only potentially overburdened or underserved spacebugs, but the multi-scalar production and/or reproduction of atmospheres, aquifers, and soils and their invisible and visible impacts on humans and non-humans alike.

Moreover, the technical replacements for landfill are no less of this world, despite their apparent decontextualization from specific lands. Incineration releases pollutants that migrate through the air and also leaves behind ashes, both of which must be managed. Four Corners had an entire ash cell dedicated to burying the leftover materials from Detroit's incinerator. Composting also involves microbial relations, as did the compost piles at Four Corners. At different scales of operation, composting can occur in containers rather than the open air, which changes the kinds of microbes involved and alters the products that result. Protesting, regulating and running any of these operations must similarly attend to the ecological relations they partake in. Lest all recycling, burning, and composting practices be lumped together as comparatively low-impact and landless processes, their relationship to specific corporeal, ecological, and global relationships requires equal attention. Regardless of what becomes of what people discard, there are nonhuman understories worth telling that transform understandings of waste management in turn.

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