Also by Elizabeth Royte

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Garbage Land

ON THE SECRET TRAIL OF TRASH

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Introduction

Quantifying in the Kitchen

On a sunny spring afternoon long before I ever decided to travel around with my garbage, I slid off the dead end of Second Street, in the Boerum Hill neighborhood of Brooklyn, and down a seven-foot embankment oozing green and brown liquid. I braced my foot on the end of a rotting nineteenth-century beam and prayed that it would hold. It did, and soon I was seated in a slime-encrusted canoe in the Gowanus Canal, my sneakers awash in bilgewater. My life vest and jeans now bore distinctive parallel skid marks. A sportsman in a Gowanus Dredgers cap released the bowline and casually informed me that those row houses—he pointed up Second Street—were discharging raw sewage into the canal. "That would explain the smell," I said.

It was Earth Day 2002, and I'd come out not to collect floating garbage—the siren call for two dozen local Sierra Club members—but to get a little exercise. I'd never paddled around the city, and I wanted a new perspective on my neighborhood. I also wanted a backyard view of what the media were touting as up-

and-coming real estate. "Gowanus," after morphing into the tonier-sounding "Boerum Hill" in the sixties, was returning as a sales category.

I left the proffered dip net and trash bucket on the embankment and turned the canoe deeper into Brooklyn. It was low tide, and the smell was, even for someone expecting the worst, fairly bad—a combination of outhouse, mudflat, and mold. The water was a diarrheal brown and topped by a slick of psychedelically swirled oil. I J-stroked past a fuel oil depot, a sewage outfall pipe, and the tin-can-cluttered encampment of a hobo. I glided over submerged shopping carts coated thick with algae and watched as other paddlers plucked spent condoms—or Coney Island whitefish, as they're locally known—from the water's surface. It occurred to me, as I turned to work my way out toward Gowanus Bay, that I was paddling through a microcosm of the city's multifarious effluent. In one small, horribly polluted, godforsaken stretch of water drifted household trash, raw sewage, toxic waste, containers that ought to have been recycled, and rapidly putrescing organic debris. With a start, I realized it was all the stuff I got rid of almost daily.

Scanning the canal and its collapsing bulkheads, I wondered if I was complicit in this specific mess. I lived uphill, in Park Slope, and understood that garbage has a tendency to roll down, to settle on the margins. Before this day I'd wondered only idly how my detritus disappeared. You can't live in New York or any big city and not be aware that vast tonnages of waste are generated daily. If you're unlucky enough to be around during a garbage strike or an extended snow emergency, those tonnages assume a visceral reality. But most of the time that reality is virtual, because somehow our unwanted stuff keeps disappearing. It moves away from us in pieces—truck by truck, barge by barge—in a process that is as constant as it is invisible.

Now, as I paddled slowly through the Gowanus feculence, my curiosity grew. I understood that my regular trash went to some kind of landfill, but what about my recyclable tuna fish cans and my plastic shampoo bottles? These containers were tipped into the

same truck, but surely the combined waste streams were at some point teased apart. Where, and by whom? And then what? My waste was no longer within my sight or smell, but surely it fell within others'. What impact did my rejectamenta have on other living things? Once I started to think about these questions, I couldn't let them go.

I felt drawn to the Gowanus for atavistic reasons (who doesn't like the shore?), but I was also interested in the canal as a backyard conduit and as a junkyard, of sorts. Over the years, the Gowanus had developed a reputation as a dumping ground for the mob; a character in Jonathan Lethem's *Motherless Brooklyn* refers to the canal as "the only body of water in the world that is 90 percent guns." Some of New York's garbage infrastructure was overt, some was covert, and the Gowanus seemed to fall somewhere in between. The canal was one hundred feet wide and one point eight zigzagging miles long, not counting the three spurs, called basins, that led to the loading docks of warehouses and factories along the avenues. There were enormous gravel barges tied to the canal's edge and sunken barges sitting on its bottom. Among the facilities that actually made use of the water were an asphalt plant (which used to incorporate the city's recycled glass into "glassphalt"); a marine transfer station, where the borough's residential garbage had, until a year ago, been tipped into barges bound for Staten Island's Fresh Kills landfill; a couple of cement factories; and two fuel oil companies. A guy named Orion lived on a houseboat near Carroll Street, and Lenny "the Chicken Man" Thomas worked atop the Union Street Bridge, raising the drawbridges when tallish boats requested it and developing recipes for street-cart barbecue when they didn't.

When the Dutch first arrived in Brooklyn, in the early part of the seventeenth century, the Gowanus was a tidal creek that ran through the salt marsh valley between Park Slope, where I lived, and Carroll Gardens. (The word *Gowanus* comes from the Iroquois chief Gowanes.) Native Americans lived well on fin- and shellfish they collected in the briny waters. The Dutch farmed the

local oysters and exported them by the barrelful to Europe—"oysters as big as dinner plates," Owen Foote, a cofounder of the Gowanus Dredgers Canoe Club, said to me (everyone who talks or writes about New York City oysters uses dinnerware as a measuring stick).

Gradually, dams and landfills altered the salt marsh's ecology. In 1849, the New York State Legislature authorized construction of a straightened and walled canal. (Of course, the Gowanus wasn't really a canal, since it didn't connect anything, but creeks didn't qualify for state construction money.) South Brooklyn was rapidly becoming industrialized, and the canal, completed in the late 1860s, was soon lined with stone yards, flour mills, chemical plants, cement works, and factories that turned out paint, ink, and soap. By then, Brooklyn was America's third-largest city. Barges hauling brownstone and bluestone, lumber and brick—the stuff that built my apartment house and its environs in the 1880s—jostled for position in the harbor, waiting to enter the canal.

Almost from the beginning, the Gowanus was a filthy place: with limited tidal exchange to open water, the discharge of raw sewage, combined with unregulated industrial waste, stagnated. Local residents, appalled by the stench, launched a campaign for improvement. In 1911, the city completed construction of the Gowanus Flushing Tunnel, designed to suck 200 million gallons of water a day from the East River, flush it for more than a mile underneath Brooklyn, and then discharge it into the back end of the canal. The neighborhood celebrated the pump's opening on a June afternoon with Miss Gowanus gliding up the canal on a barge, strewing flower petals in her wake. In the years following World War I, the Gowanus moved six million tons of material a year: it was the nation's busiest commercial canal.

But it didn't last. After World War II, the Gowanus Expressway was opened, and trucks gradually siphoned work from barges. The canal became a stinky anachronism: the pump broke in 1961, and there was no money for repairs. In 1989, South Brooklyn got a wastewater treatment plant, but it did little to solve the Gowanus's odor and pollution problems. Through twelve wastewater overflow pipes, storms still deposited raw sewage and toxic rainwater into the canal. Finally, a decade after the treatment plant opened, the pump was fixed. The city dredged two thousand tons of contaminated muck from the canal's bottom, and the Gowanus Dredgers and the Urban Divers, another community group focused on canal restoration, weighed anchor.

The busy summer paddling season passed, and Ludger K. Balan, the Urban Divers' self-styled environmental program director, offered me a private ecology tour of the canal. We arranged to meet, in two days, at the end of Second Street. I showed up early, then watched the appointed hour, from my perch atop a concrete slab, come and go. The tide slowly dropped and the sun beat down. The water was so clear I could make out a chaise longue settled peacefully on the canal's bottom. Condom wrappers and Colt 45 tallboys littered the boatyard. Was there no place off the beaten track that was free of this stuff? Only slightly annoyed, I basked in the autumnal warmth and made note of my surroundings. "I Peed on U," someone had scrawled on the Dredgers' equipment locker. "Hey Fear You Blue-haired FAG."

I checked my watch for the third time. In the weeks and months ahead, I'd learn that time was loosely constructed in Balan's world, that directions were vague, phone numbers often garbled, e-mails so badly written it was difficult to tell if events were planned or were already history. The Gowanus Dredgers ran a tighter ship, but it was Ludger K. Balan who had offered me an ecology tour, and so it was Ludger K. Balan's club that I paid twenty bucks to join.

At long last, Balan pulled up in a van decorated inside and out with plastic fish and mermaids. A short, muscular black man, he wore neoprene booties, rubber bracelets, a brown sweater under red rubber overalls, and a woolen headband wrapped around a teapot-sized bun of dreadlocks. Balan was half Haitian and half Arab, he said. He had grown up in France "and four other countries." I noticed that his British accent came and went as he warmed or cooled to his subject.

We drove up Bond Street to a weedy, potholed lot. This was the Divers' actual boatyard, a corner of a plot owned by a local named Danny, who seemed to be at the center of several smallish operations involving heavy equipment, the film industry, and auto-body repair. Balan and I wended past refrigerators, pipes, iron beams, and movie trailers, then carefully tiptoed across the top of the bulkhead toward two aluminum skiffs painted orange. We manhandled one onto a floating dock and loaded it with wooden oars and a five-gallon bucket filled with water-sampling instruments. Balan, a self-appointed waterway steward, claimed to collect data twice a week, in good weather, and hand it over to the Army Corps of Engineers, which was considering dredging the canal once again. The Urban Divers organized scuba trips around the city and spent significant energy on public education, which included luring in potential "citizen monitors," like me.

Settled in the boat now, Balan rowed us past the Bayside Fuel Oil company, where giant oil tanks were buried beneath grassy berms, a hedge against explosion. Bayside was the only company that brought boats this far back into the canal these days, but it couldn't take oil deliveries at low tide or during extreme temperatures, which sometimes interfered with the smooth operation of the drawbridges.

An underwater filmmaker, Balan had come of age in a hundred-foot visibility zone. "Diving in the Caribbean was almost overstimulating," he said. "In the Hudson, you can see just three feet. It's quiet and meditative." He occasionally dove in the Gowanus, but it was an ordeal. He wore complete protective gear, including a rubber dry suit with a face mask. It took a long time to put everything on. "None of your body parts can touch the water," he said. "When you get under, you try not to disrupt the sediment, for visibility and for health." Afterward, everything had to be meticulously washed. "We have spotted poo-poo in the canal," he added in the tone of a TV anchor. In July of 2000, the Brooklyn Center for the Urban Environment had optimistically planted five thousand caged oysters in the canal as an indicator of water quality: today, only eighty stunted survivors remained.

At the Third Street Bridge, we hauled up a fish trap and counted four fillies, grayish minnows about two inches long. Once, Balan found 115 in a single trap. On other days, the Urban Divers had hauled up silversides, toadfish, tomcod, sea robins, flounder minnows, and pipefish. I wrote "4 fillies" in Balan's log and started handing him his tools. The water temperature today was 15 degrees Celsius. The pH was 7.5—a little acidic. Salinity was 23. To estimate water clarity, we lowered a Secchi disk—a white plastic circle about the size of a Colonial-era Gowanus oyster—and got a reading of four feet. Anything over five feet was considered pretty good, with declines in transparency typically due to high concentrations of suspended solids: sediment, plankton, and the aforementioned poo-poo.

Next, Balan dropped a stylus filled with electrolytes over the gunwale. "We could be in dead water," he said gravely. "A normal dissolved oxygen level is five point eight parts per million. We've got point two." I suspected faulty equipment, but Balan suspected the pump. "Dissolved oxygen levels drop in about a day when it's broken," he said.

The occasional failure of the pump is, according to some, intentional. If the canal becomes too clean, certain businesses may no longer be welcomed here. Today, the canal is a sacrifice area, a series of brownfields zoned for industry, and not a few manufacturers want to keep it that way. The pump is at the heart of the matter. When it's broken, floating debris and chemical spills aren't flushed; when it's operating, everything looks and smells better. Many canal activists credit the pump with bringing wildlife back to the canal. First came the oxygen, then plankton, then fin- and shellfish (oysters, mussels, and crabs), and then waterfowl. In 2002, Balan's group documented thirty-eight species of birds around the canal, and a couple of Jet Skiers in it, too. But like a federally listed endangered species to a strip mall developer, the idea of a cleaner, greener Gowanus is anathema to some.

A few months ago, Balan and his wife, Mitsue, had collected eighteen large bags of trash from a grassy patch between the canal and the Pathmark supermarket, by the Hamilton Avenue bridge.

They had asked the store to take the full bags, but they'd refused. So did the Brooklyn South 6 sanitation garage, even though it was just one avenue away and the guys were over here constantly (the Dunkin' Donuts adjacent to the supermarket was open twenty-four seven). Eventually, the Balans themselves hauled away the sacks. The tiny lawn they had cleaned was now a carpet of vibrant green shadowed by a birch in full autumnal splendor. It would have been a nice place to sit and look at the water, but for the racket of traffic overhead.

A Columbia University agronomist once told me that coffee-drinking habits in the New York metro region had the potential to affect the hillsides of faraway coffee-growing nations. We ran through a lot of beans in the city, she explained: almost 204 million pounds a year, based on a conservative average of 1.7 cups per person per day. If all those beans were grown in, say, El Salvador, they'd dominate the country's harvest. Of course, New Yorkers bought beans from many different countries, but the professor had made her point. The choices we make have repercussions far and wide. Buying shade-grown coffee that conserves forests for other species and supporting fair labor practices could have a salutary effect on people and places we'll never see.

William Rees and Mathis Wackernagel, regional planners in Canada, developed the ecological footprint concept as a way to measure the sustainability of our lifestyles. Basically, a footprint totals the flows of material and energy required to support any economy or subset of an economy (coffee drinking, for example), then converts those flows into the total land and water surface area that it takes to both provide those resources and assimilate their waste products. For residents of densely populated cities, that surface area extends well beyond our borders, into the hinterlands. We don't grow much, and our water and energy come from afar. Measuring our coffee footprint, or any other footprint, isn't necessarily about good and bad; it is about making informed choices.

But lattes were just the beginning. Mindful of our consumptive lifestyles, I imagined the city had a garbage footprint bigger than

any in the world. We were eight million people, we consumed and threw out a lot, and we had very little nearby space in which to dump our discards. For nearly fifty years, New York City relocated its trash—a peak of thirteen thousand tons a day from houses and apartments, plus an additional thirteen thousand tons a day from commercial and institutional buildings—to the Fresh Kills landfill on Staten Island, our least-populated borough. In 1986, Fresh Kills became the largest dump in the world. It rose two hundred feet above its surrounding wetlands and formed the highest geographical point along fifteen hundred miles of eastern seaboard.

Fresh Kills closed in March of 2001, and for the first time in its history, the city had no place within its boundaries to bury or burn all the stuff its residents no longer wanted. Now the city exports almost all its solid waste to outlying states. Our footprint, which has always been big, has suddenly become a lot bigger. And New York isn't the only city spreading its garbage toes.

Since 1960, the nation's municipal waste stream has nearly tripled, reaching a reported peak of 369 million tons in 2002. That's more stuff, per capita, than any other nation in the world, and 2.5 times the per capita rate of Oslo, Norway. The increase is due partly to increased population but mostly to the habits of average residents, who now throw out, says the EPA, 4.5 pounds of garbage per person per day—1.8 more pounds than forty-five years ago. According to the Congressional Research Service, the biggest producers are California, followed by New York, Florida, Texas, and Michigan. *BioCycle* magazine and the Earth Engineering Center of Columbia University reported in their "State of Garbage in America" report for 2003 that every American generated 1.31 tons of garbage a year. Nearly 30 percent of the aggregate mess was recycled or composted, according to the EPA; 13 percent was incinerated; and the overwhelming majority, 57 percent, was buried in a hole in the ground.

After paddling the Gowanus, I became increasingly curious to learn what sort of impact my own 1.31 annual tons had as it meandered through the landscape. To do that, I had to go on a

garbage tour, of sorts. But before I started my far-flung travels with trash, I decided to acquaint myself, like Thoreau in Concord, with the extremely local, and take a close look inside my own kitchen waste bin. Like fossils, ancient kitchen middens, and Clovis points hewn by early man—evidence scrutinized by scientists peering into our past—the stuff we reject today reveals a great deal about human beings and how they live. What would my garbage say about me? What exactly was I throwing out, and how much of it was there?

My voyage of self-discovery, like so many voyages, began with an acquisition. I unwrapped my Polder 2 in 1 Gourmet Add N' Weigh Digital Scale & Kitchen Timer and settled the white plastic disc on my counter. Battery-operated and sleek, it could handle a maximum of seven pounds. "Surely I won't generate more than seven pounds of trash a day," I told myself naively. An empty wine bottle, I'd learn that very night, weighs about one pound.

I couldn't wait to begin digging through my garbage. After dinner I collected my tools on the kitchen floor: the scale, a notebook, a pen, an empty plastic bag. I sat down and tightly tied the full trash bag—a plastic grocery sack—to keep it from toppling off the scale. After weighing, I untied the sack and started removing items one by one, writing down their names and placing them in the new bag. This sounds straightforward, but it wasn't. My pen got sticky; coffee grounds spilled onto the floor. My daughter, Lucy, who was three at the time, was instantly at my side offering help. Halfway through, I washed my hands and put on a pair of rubber gloves, which made writing difficult. My data for the first day looked like this:

October 3. Foil packaging from Fig Newmans, empty box of sandwich bags, waxed paper bag from muffin shop, 2 plastic bags from vegetables, plastic bread bag, coffee grounds, receipt from grocery store, grapefruit and watermelon rinds, misc. food scraps from dinner, 1 slice stale bread, 1 banana peel, 5 basil stems, 1 half-gallon plastic milk bottle, 2 half-gallon juice cartons, 1 beer bottle, 1 jelly jar, 1 wine bottle, 1 half-liter plastic bottle of chocolate milk, 1 peanut butter jar, miscellaneous "fines."

Total weight: 7 pounds, 9 ounces.

I was a little embarrassed about the contents of my trash, especially the chocolate milk container. It had been a treat for Lucy. I didn't usually buy individual servings of anything: they were expensive and their packaging created more trash. William Rathje, founder of the University of Arizona's Garbage Project, which was established by archaeologists to study both human discard habits and the inner dynamics of landfills, insists that refuse reflects truth. Garbage sorting reveals that "what we do and what we say we do are two different things." We underestimate how much booze we drink; we overestimate our leafy greens. I resolved to be more careful about chocolate milk containers, though I reckoned I'd have a hard time explaining it to Lucy.

I returned to my diary entry. *Fines*, a word used by Rathje in his garbage sorts, included floor sweepings, dust, strands of hair, coffee grounds—all the tiny stuff that settled to the bottom of the bin. I noted the cardboard box from the sandwich bags. That had been a mistake: I'd been too lazy to bring it out to the paper-recycling pile on my landing. I didn't feel so bad about the beer bottle: I had weighed it, but it wasn't going to the landfill because New York was a bottle bill state. I'd put it on the sidewalk for a homeless guy named Willy, who'd redeem the container at the local beverage center for the nickel deposit.

I couldn't have begun quantifying my garbage at a more confusing time in New York's recent history. If I'd started my project four months earlier, I would have been recycling four pounds, one ounce of my total weight (or 51 percent) and been sending just three pounds, eight ounces to the landfill for two days in the life of my small family. But years ago, our Republican mayor Rudolph Giuliani had promised the overwhelmingly Republican residents of Staten Island that he would close Fresh Kills. Now, instead of paying about $40 a ton to dump waste within the city limits, we paid

$105 a ton to export it. Facing a tight budget, our current mayor, Michael Bloomberg, had recently suspended the recycling of glass and plastic, claiming that it cost too much to collect and process. City environmentalists were outraged, and so was I. My project had barely begun and already it was complicated by politics.

I didn't want to let this blip in the history of New York skew my data. Bloomberg had promised that plastic recycling would return in one year and glass in two. (He was persuaded by environmentalists to keep his hands off the metal and paper streams, which continued to bring revenue to the city.) I considered putting my project on hold, if only so I'd have a chance of beating the national average. The decision to include or exclude became morally freighted. Ultimately, I decided to weigh my glass and plastic separately, just so I'd have the data, then total my garbage both with and without these materials.

When I was done combing through my trash, I put a new bag in the empty kitchen can and brought the full sack down to the mother bin in my brownstone's front yard. Then I washed my hands and reviewed the first night's lessons. I noted that food waste, the wet stuff, really messed up my garbage. That wine bottles were heavy. That Peter, my husband, had thrown away a hunk of moldy cheese that he could easily have trimmed (if he didn't have a phobia about mold). That I had left small bits of paper in my trash. That I could probably do a much better job of shrinking my garbage footprint.

There was something else I noticed, too. The plastic sack with which I'd just lined my trash can was no longer empty. I'd turned my back for five minutes, and already the waste was accumulating. Was there no relief from it? Did the flow ever stop? I wondered if sanitation workers ever felt a sense of futility. They cleaned one street after another after another, until the district was officially clean. But no sooner were the bins tipped than they immediately began to fill. Emptiness—cleanliness—was a condition so brief as to be nearly undetectable. "You can't think about that," one of my sanitation workers (or san men, as both men and women called themselves) told me. "You'll drive yourself crazy."

In two days' time, the kitchen bag was full. Again, Lucy sat on the floor next to me, wearing a rubber glove that was twelve sizes too large. Coffee grounds speckled her thigh as she sorted plastic from glass and held up objects for identification.

"Having fun?" I asked.

"It's a little smelly," she answered. "Daddy, what's this?" She held aloft something soft and red.

"That's a chicken liver," Daddy answered from his position at the stove.

Turning toward me, Lucy asked, "Why do we have so much trash?"

I gave her the proximate answer. "Because we keep throwing things out."

"Why do we throw things out?" She handed me a plastic milk cap and answered herself. "Because they get yucky." Did she mean yucky before they hit the can or after? I sang a little song to her: "It really isn't garbage till you mix it all together. / It really isn't garbage till you throw it away. / Just separate the paper, plastic, compost, glass and metal, / And then you get to use it all another day."

"Mommy," she said, "will you sing 'Stewball'?"

After a week of sitting by my side, Lucy lost interest in combing through garbage. She was lucky to live here, in the grand ol' USA. In many developing nations, entire families pick through municipal dumps together in search of materials—fabric, metals, paper, glass—that can be exchanged for cash. The work is hierarchical: the highest-ranking families have rights to the most valuable stuff, usually metals. Rooting through my garbage, I wondered briefly which items I'd keep if I had to live off this waste. Then I realized I wouldn't have bought most of this stuff in the first place, or thrown most of it out, had I been in that position.

I was now dumping the trash on Lucy's blue plastic toboggan before sorting it, and that kept the floor cleaner. The sled was a mess, though, and it took a few tries till I learned how to rinse it in the kitchen sink without dumping a quart of water on the floor. I considered buying a composter for all the food waste, or at least

the coffee grounds, which coated everything in the kitchen bag. But I didn't have a garden in which to use the finished product, and cultivating rotting food outside my brownstone would surely alienate my neighbors. Or so I thought at the time.

As the Garbage Project discovered, "Garbage expands so as to fill the receptacles available for its containment." (Project researchers called this Parkinson's Law of Garbage, after the original law formulated by C. Northcote Parkinson, a British civil servant based in Singapore: "Work expands so as to fill the time available for its completion.") My house had one trash can in the kitchen, a tiny one in the bathroom, and two more in bedrooms. By making it easy to toss things away, was I was abetting garbage mindlessness?

It's hard to imagine, but 125 years ago the kitchen trash can didn't exist. Until municipal collections were organized, in the late 1880s, the stove was the principal means of disposal. But the oven door wasn't opening and closing all day long, like a kitchen trash can. Food scraps went to farm animals. Individually packaged consumer goods were rare and expensive. Tin cans were saved for storage or scoops, jars for preserving food. Old clothes were repaired, made over into new clothes, or used for quilting, mattress stuffing, rugs, or rags. Plastic was unknown. As late as 1882, reports Susan Strasser in *Waste and Want: A Social History of Trash*, a manual on teaching children household economy had to *define* a wastebasket for readers: "It is for collecting all the torn and useless pieces of paper, and should be emptied every day, care being taken that nothing of value is thus thrown away."

But what was valued? In the days of household economy manuals, almost all castoffs and scraps could be used as barter. Today, my aluminum cans had cash value to a scrap metal dealer in New Jersey, but my wine bottle, which the city no longer recycled, was dead weight in the garbage truck. Those fourteen ounces were still a commodity, though: the more weight the city buried in landfills, the more money landfill owners pocketed.

There are other types of value assigned to trash. Artists see beauty in certain forms of litter; parents of preschoolers imbue

their offspring's every mixed-media collage with sentimental value. For composters, organic waste is a treasure trove of nitrogen. To some, litter is a tool of anarchy.

Most Americans keep multiple wastebaskets in their homes, but I decided to quantify only my kitchen trash. In the interest of full disclosure: my bedroom trash was almost entirely paper. I tried to write on both sides, then recycled the larger pieces. The bathroom trash was used tissues, stubs of soap, dental floss, and, once a month, evidence of menstruation. Now and then I'd empty the little bathroom basket into the kitchen bag, but it added at most a few ounces. I didn't mind picking through my own used tissues, but I had little interest in picking through others', even those of people I love. And here was another universal garbage truth: other people's waste is always worse than your own.

> *October 10. Two plastic wrappers from magazines, plastic from cheese, plastic from a bill of lading, 1 plastic box from fresh pasta, 1 Ziploc of slimy parsley, 1 plastic box from Fig Newmans, 1 foil-lined paper bag from mint Milanos, Lucy art (tempera on paperboard), Lucy art (collage of wax paper, tinfoil, and Saran wrap), 1 half-gallon juice carton, 1-gallon plastic milk bottle, 1 paper towel (used to clean up previous garbage sort), 6 paper napkins, 1 plastic tape dispenser, 2 stained cloth napkins, 2 stained place mats, apples, coffee grounds, onions, green-pepper trimmings, pea pods, lots of grapes, spoiled cherry tomatoes, fines.*
>
> *Total weight: 4 pounds, 2 ounces.*

Every week or so I had cause to throw out some sort of textile, and each time I jotted it down, history jabbed me in the ribs. As someone minding her footprint, I ought to have saved my stained napkins for rags. But rags weren't scarce in my house: I had enough to wash every window in the neighborhood. I realized that using old clothes or napkins as disposable dust rags merely postponed their trip to the landfill. So why do it? Because using a rag

meant I wasn't using a paper towel, which spared a fraction of a tree from being milled and a fraction of a river from some toxic papermaking discharge.

A century and a half ago, I might have saved my stained shirtwaists for the local peddler, who sold textiles to paper companies. Peddlers also relieved households of ashes, old metal, bones, and rubber, delivering them to soap manufacturers, tinsmiths, button- and boot-makers. The peddlers, in turn, supplied housekeepers with manufactured goods. This two-way trade—the earliest form of household recycling—allowed housewives to acquire goods without cash, and it was essential to the development of certain industries in the mid-nineteenth century.

Returning raw materials to manufacturers to be refashioned into other goods looked like Yankee thrift. But it was also a form of nascent consumerism, Strasser notes, a way to acquire products not grown or otherwise created at home. My situation, a hundred and fifty years on, was just the opposite. Like most people, I tended to do right by the environment—whether avoiding disposables or scrupulously turning off lights—mostly when it saved me money.

Picking through garbage was smelly and messy and time-consuming, but it was revelatory in a way. I hadn't realized my diet was so boring. Anyone picking through my castoffs would presume my family survived on peanut butter, jelly, bread, orange juice, milk, and wine. And, largely, we did. It occurred to me late one night, as I sat peacefully on the floor surrounded by the remains of the day, that I knew something about where all this stuff had come from (particularly if it was food; the nation's heightened health consciousness inspired a lot of ink on the provenance of foodstuffs) but almost nothing about where it went after it left my house. Much has been made, in certain circles, of humanity's connection to the natural world. Enlightened consumers, we don't want to eat endangered fish or buy rare hardwoods. We care about animal rights and clean water. But it wasn't fair, I reasoned, to feel connected to the rest of the world only on the front end, to the waving fields of grain and the sparkling mountain streams. We

needed to cop to a downstream connection as well. Our lifestyles took a toll on the planet, and that toll was growing ever worse.

> *October 24. One* Jane Goodall's Wild Chimpanzees *video, 1 plastic shopping bag, 1 plastic bread bag, 1 plastic veggie bag, 1 cardboard egg carton (not in paper recycling because there's a broken egg in it), 5 paper towels (from cleaning up broken egg), 2 one-pint ice cream containers and tops, Saran wrap, 1 bakery bag with leftover bialys, 1 butter paper, 4 plastic lids from coffee cups (would a careful observer surmise, from the lack of coffee grounds, that the household ran out of coffee and for two days purchased lattes, at twice the cost of a pound of coffee beans?), 1 foil packet of soy sauce, half a peanut butter sandwich, carrot peels, onion skins, lemon rind, 1 chicken carcass, soggy chicken bedding in Styrofoam tray, couscous, orange rind, bread, fines.*
>
> *Total weight: 10 pounds, 6 ounces, of which 7 pounds, 8 ounces is recyclable (7 wine bottles, 1 half-gallon juice carton, 1 one-liter plastic bottle from olive oil, 2 jars).*

The only time I really dreaded quantifying garbage was after dinner parties. I waited until the last guest was gone, then wearily hunkered down on the kitchen floor to extract the items that less footprint-minded friends had tossed into the trash: the brown bag from a wine bottle (to the recycling pile), a rubber band from a bouquet (to the odds-and-ends drawer), a beer bottle (to Willy).

Parties made my kitchen garbage wet, heavy, and smelly. I blamed the meat. A hundred years ago, I'd have handed over my leftover chicken carcass—probably with far less flesh on it—to the local "swill children," who supplied rag- and bone pickers with material that they in turn sold for buttons and knife handles. The fat rendered from bone marrow would have gone to factories for lighting and lubricating; gelatin was used in making glue and in

processing food and photographs. Bones also made excellent fertilizer, a commodity that became increasingly important to farmers as untilled land became scarce after the turn of the nineteenth century. If I wanted to recycle my chicken here at home, I could have made candles from the grease now coating the trash bag, or soap, by combining it with lye that I made by dripping water through wood ashes. (For one Martha Stewart-ish moment I considered this. Like many brownstones in my neighborhood, mine had a working fireplace. But I'd need several pounds of ashes to get started, and the heating season was young.)

Looking at the postprandial mess arrayed before me, I assumed that I was generating far more waste today than I would have fifty or a hundred years ago. For one thing, there were no triple-wrapped Fig Newmans or mint Milanos back then. But in fact, if calculated by weight alone, I was doing pretty well. According to Daniel C. Walsh, a professor at Columbia University's Department of Earth and Environmental Engineering who examined a century's worth of city garbage records, per capita rejection in New York peaked in 1940 at 2,068 pounds a year, or 5.66 pounds per day. It dropped to a century-low 712 pounds a year in the midseventies (the economy was in poor shape) and by 1999 rose to 928 pounds. The rate, he reported in *Environmental Science & Technology,* has been fairly steady since 1980. (Walsh attributed this nearly flat line to reductions in the weight of bottles and cans, and the advent of deposit bills. We may actually have been throwing out more, he implied, but the more weighed less.)

The big difference between then and now is our fuel sources. Approximately 34 percent of the 3.5 billion tons of refuse generated over the twentieth century was coal and wood ash. Looking just at the century's first four decades, the ash fraction was even higher: a full 60 percent. By 1950, the use of coal for heating had declined to the point where paper replaced it as the largest proportion of the city's residential waste stream. I laughed when I read Walsh's hopeful prediction that paper would ultimately be replaced by more economic digital technologies: I'd read his paper online, then printed it out.

According to Walsh, the mass fraction of food in the (ash-free) waste stream dropped from 65 percent in the early 1900s to 13 percent in 1989, thanks to improved refrigeration, the increased use of chemical preservatives that lengthened shelf life and reduced spoilage, and the increased availability of frozen food, which resulted in the sale of fewer untrimmed vegetables. While food waste went down, however, packaging waste went up. Americans had become more prosperous, and thanks to the evolution of technology behind consumer goods, there was far more stuff available for them to buy.

The advent of different types of plastic, between the thirties and the forties, radically altered how Americans kept house. Polystyrene made refrigerators more affordable, for example, and Plexiglas reduced the cost of manufacturing headlights, lenses, windows, clocks, and jewelry. Manufacturers began hyping disposable products—sanitary napkins, paper towels, plastic cups—as scientific, modern, and hygienic. Tapping into class prejudices, ad campaigns suggested that the old ways, linked to poverty and recent immigration, were dirty. (A Kotex ad in 1927 claimed that "80% or more better-class women have discarded ordinary ways for Kotex." "Ordinary ways" were reusable cloths.) The new disposables were touted as time- and labor-savers that would boost women into the leisure class. To resist the siren call of the new, writes Strasser in *Waste and Want,* was to risk being branded backward and fearful.

Before New Yorkers burned or buried their waste, they pitched garbage out their windows and onto the city streets, where it was consumed by scavenging pigs and dogs. It was the same in any large American city. Still, there was always more refuse than animals, swill children, and ragpickers could handle. By the 1800s, the filth in lower Manhattan had accumulated to a depth of two to three feet in the wintertime, when household waste and horse manure combined with snow. My brownstone in Park Slope, like others built in the late 1800s, has a stoop leading to the second floor, which let residents clamber above the mess (though it still seeped

into the ground floor during storms and when snow melted). For much of the nineteenth century, trash removal was a private, not municipal, service, which made garbage an issue of social class. I don't know who lived in my building a hundred and twenty-odd years ago, but it's likely they paid someone to take their ashes and food scraps away, to be dumped with other wastes into the Atlantic Ocean.

Periodically, but usually spurred by outbreaks of disease, city officials made concerted efforts to clean the streets. It wasn't a simple matter. Even when Manhattan's population was less than a million, in the mid-nineteenth century, city horses dumped 500,000 pounds of manure a day on its streets, in addition to 45,000 gallons of urine. These were hardworking beasts, and their average life span was just two and a half years. In 1880, according to historians, 15,000 dead horses had to be cleared from city streets. A single carter couldn't lift a horse, so the carcasses often lay around until scavengers and the elements reduced their mass. At this point they were unceremoniously tipped into the river, along with household refuse, or sold to "reduction plants" on Barren Island, out in Jamaica Bay, where they were steamed and compressed to produce grease, fertilizer, glue, and other unguinous by-products.

In 1895, a reform mayor ousted Tammany Hall, Manhattan's popular Democratic political machine, and appointed a crusading new commissioner of street cleaning, Colonel George E. Waring Jr. Working under the auspices of the Health Department, Waring put an end to sporadic cleanup efforts, instituted regular trash pickups, and required New Yorkers to separate their garbage into three curbside bins for fuel ash, dry rubbish, and "putrescible" waste (this quaint label for the wet stuff is still used by the Department of Sanitation today, though it now refers to anything that's headed for the dump).

The putrescibles were barged to the reduction plants and the ash delivered to landfills. (Brooklyn's was carted to Fishhooks McCarthy's smoldering Corona ash dump, in Queens, which became the model for F. Scott Fitzgerald's Valley of Ashes, "a fantastic farm, where ashes grow like wheat into ridges and hills and

grotesque gardens." The ash dump closed in 1933; six years later, the World's Fair rose on its site.) As it had been for many years, dry garbage, after being picked clean of valuable materials like rags and paper, was used to fill waterways and wetlands, creating tens of thousands of acres of valuable waterfront real estate, including most of lower Manhattan, the Red Hook shoreline of Brooklyn, and almost the entire northern and southern fringes of both Kings and Queens Counties, upon which our airports were built.

New Yorkers in 1895 were just as balky about separating garbage as New Yorkers are today, and Colonel Waring's diversion rate (that is, the amount of stuff he kept out of landfills) was not high. In 1898, Tammany Hall recaptured the mayor's office, ended the recycling program, and resumed ocean dumping. The garbage killed oyster beds and it interfered with shipping. When waterfront-property owners complained about animal carcasses and rags on their beaches, the city once again dialed back ocean dumping (though it wasn't banned by the federal government until 1934), and a single stream of unsorted garbage flowed to eighty-nine open dumps scattered around the boroughs.

By the forties, public tolerance for the accumulating filth and vermin reached a tipping point. The city responded by closing its festering mounds and opening incinerators. At one point, twenty-two so-called burn units (in addition to the scores of small-scale "toasters" stoked by superintendents in high-rise apartment buildings) operated throughout the city, spewing noxious black smoke into the skies. The haze was so thick at times that Manhattan couldn't be seen from New Jersey.

As the small dumps were phased out and incinerators fell into disfavor, the city pioneered other methods of entombing waste. In the newfangled "sanitary" landfills, garbage was covered with a blanket of dirt at the end of each working day. The dirt muffled odors and kept vermin at bay (that is, if it was applied soon enough. In Santa Marta, Columbia, buzzards gorging on unburied trash have become too fat to fly, prompting rescue efforts by environmentalists). New York's first modern dump was Robert Moses's Fresh Kills, which opened for business in 1948. Staten Is-

land residents weren't happy about the abrasive master builder's plan, but Moses had promised them that the landfill would close in three years and that they'd get a new highway in return for their indulgence. Moses died in 1981, twenty years before the last Fresh Kills–bound garbage barge was tugged out of New York Harbor.

The more I learned about the history of garbage in New York, the more I saw that it was a history of interim solutions, of reactions to crises political, economic, and social. Even when the federal government stepped in, change was achingly slow. Congress passed the Clean Air Act in 1970, for example, but it took until 1994 for New York City to shut the damper on its last municipal incinerators. For more than two hundred years, New York's garbage has changed hands through cronyism and favors, and landed on the backs of the disenfranchised. Only recently have NIMBY-ism and advocates for environmental justice begun to push back. Sometimes garbage is shunted elsewhere, but always at great cost.

It's the same anyplace, really. Whether you live in rural West Virginia or inner-city Chicago, you don't want other people's garbage anywhere near your backyard. Yet Americans everywhere are producing steadily more waste. Politicians devise short-term solutions, and waste managers, who own the means of disposal, seem to hold all the cards.

By the time I began traveling with my trash, Fresh Kills had been closed for two years. I knew that the city's garbage was now trucked far and wide, but I didn't know exactly where my stuff went or what happened to it once it arrived. Early one morning, I watched from my third-floor vantage point as a packer truck compacted my peanut butter jars and chicken bones with those of my many, many neighbors. What had been mine was now, unceremoniously, the city's. It was time to come downstairs, to find out what happened next.

Part One

To the Dump