

Letter From the Desk of David Challinor  
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Virtually every house in the District of Columbia has a city-furnished, stout, plastic garbage can designed to be lifted hydraulically so that its contents can be dumped into the open trough at the back of a garbage truck. Periodically the crew empties the filled trough into the truck's container where it is compacted. This is the last most people see of their waste as it begins its journey towards ultimate disposal. Today human waste is a vivid example of "out of sight, out of mind." Other than the whining of the compactor and the emptied garbage cans, there is little to remind us of the garbage truck's visit. Our garbage containers are returned to their regular place in the home and routinely filled with the detritus of our over-privileged lives. This letter is about what happens to our trash after it is hauled away, and how other nations, particularly impoverished ones, handle the problem of waste management.

Commercial "waste management," as it is euphemistically called, is an enormous industry that is still expanding and consolidating. It has certainly changed during my lifetime. As a child in New York City, I retain a vivid memory of the sound of metal garbage cans being banged against the truck to empty them, followed immediately by a high-pitched clang as the empty can was thrown back onto the sidewalk. In those days, the Mafia controlled a large part of the commercial garbage collection industry as there was much profit to be made and little interest from others. This was a time before disposal units and rotting vegetable matter created strong odors. The waste was dumped in nearby landfill sites, but restaurant food waste was hauled to the pig farms in Secaucus, NJ, where their characteristic smell was easily noticed on the then new Pulaski Skyway over the Jersey Meadows. In fact, domed mounds 150' high are still visible from Interstate 95 just north of Newark, NJ. These relics of an earlier era are now vegetated; the waste hidden below is slowly decomposing and will eventually be a treasure trove for future archeologists. Compacted newspapers, for example, are still legible after decades of burial.

Below ground, methane gas is produced as a byproduct of the decomposition of organic matter. The old Kenilworth dump in D.C. is now a seeded meadow which supports several shallow wells to collect methane (a colorless, odorless, flammable gas) used to heat the nearby National Aquatic Gardens. Despite producing a small amount of methane, covered dumps are of little economic value unless they are landscaped, at considerable expense, and converted to parks.

Large landfills near cities are being rapidly phased out. The last one within New York City's limits, Fresh Kills Dump on Staten Island, will close in 2001. With nearby fill sites no longer available and ocean dumping sharply curtailed, cities have no alternative but to haul their trash by truck or train to ever more distant locations, or to reduce the volume by recycling. Waste, however, continues to accumulate inexorably, and imaginative ideas on how to handle it become increasingly challenging. Even Third World nations (whose problems I will discuss later), desperate for hard currency, are no longer enticed to accept our waste no matter what premium is offered. They, too, are being swamped.

Here in the U.S. recycling has had mixed success; it is more costly to separate trash, but its value is then higher. New York City's recycling effort is an example of the dilemma faced by municipal waste managers. City residents (mostly apartment dwellers) only separate out newspapers and cardboard. The rest of the trash is mixed contents. Recyclable waste goes to the Bushwick section of Brooklyn where it is emptied on wide conveyor belts in a huge building covering two city blocks. As the trash moves down the conveyor, huge magnets retrieve metal cans and other steel objects. Glass is separated and smashed in rotating drums; when the particles are small enough, they pass through holes for recycling. The rest of the waste is sorted by hand, a repetitive and expensive process. This plant handles 400 tons daily of metal, glass, paper and plastic, but that represents only 20% of the total recyclable material discarded by New York City dwellers. This plant is one of about ten, all of which and more will be needed when the Fresh Kills dump closes.

New York's recycling approach is a result of a conscious decision. In many cities and suburbs, residents are required to sort trash into as many as a dozen piles, including glass bottles by color. Mixed-colored glass is almost valueless, but color-sorted glass commands a premium price and can be sold directly to the processor, thereby avoiding the intensive labor of the recycling center. However, in city apartments it is not practical to sort to this degree, and having separate partitions on city garbage trucks to maintain the sorts would be prohibitive. Hand-sorting does allow some return for the recycling plant. For example, baled aluminum cans sell for about \$1,000/ton. Newsprint prices vary greatly from less than \$1/ton to over \$100. Even in a recycling plant as sophisticated as the Bushwick one, about 30% of the volume received ends up in a landfill. Expense is an important factor as recycling costs over \$300/ton, whereas dumping non-recyclable trash in a landfill runs to only \$170/ton. Some cities, such as Portland, Oregon and Minneapolis, recycle almost half of their garbage, but New York City hopes to reach only 25% by 2002.

In sharp contrast to our efforts to handle the enormous waste from our consumer society, other countries have similar problems but quite different solutions. Ancient city dwellers merely threw trash out their windows and over centuries, as archeologists have learned, the city merely grew higher on the waste of previous generations. This practice is still followed in the city slums of many impoverished nations, which not only lack regular garbage collection, but also running water and electricity.

The Washington Post (7/11/00) had a front page story headlined "Manila Squatters Buried by Garbage." This article recounted the tragedy of at least 60 bodies being recovered from under huge mounds of garbage in the public dump outside the city. People actually lived in shacks made of salvaged material within the dump and survived this almost unthinkable existence by picking through the garbage for items to sell. Recent rains had caused the huge mounds to become unstable, and when they collapsed on the shanties, fire broke out from lighted cooking stoves causing further death and destruction. Rescue efforts were hampered by a lack of

electricity for floodlights and by the narrow "streets" between the piles of rotting garbage; they were too narrow  
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for fire trucks and rescue equipment. Although the dump was scheduled to be closed in December 1999, the action had been postponed because dump dwellers refused relocation -- they could not afford it!

Cairo, Egypt (population 13 million) has used its own traditional and relatively efficient way to handle garbage removal and recycling. It is collected by a group of people called the "Zahaleen," which roughly means "people of the garbage." They live within the garbage dumps located in the hills southeast of Cairo where the stones for the Pyramids were once quarried. The collectors, often children, disburse daily from their hovels in small donkey carts to collect Cairo's trash. Each evening when they return to this odiferous place of free-ranging pigs, dogs and other omnivorous animals, they sort through their load for recyclable items to be sold to middlemen. The latter occasionally profit enough to replace their own cardboard and sheet metal hovels with mudbrick or cement houses, but still within the dump.

The Zahaleen are mainly Copts (Christians) and they obviously live a precarious life; probably half of their children die from disease or malnutrition. Their role in the local economy dates back for centuries, and most middle class Egyptians are so used to them that they are barely aware of their presence. The Zahaleen have privatized garbage collection and thus freed an overburdened and often inept municipal government from having to deal with waste disposal, but at what human cost! Other megatropoli in West Africa, for example, expand their slums into former mangrove swamps where at least the tide flushes the garbage twice daily. But so much of it floats that adjacent long, sandy beaches are now so thoroughly polluted and contaminated that they no longer support either tourism or fisheries.

What is the future for global waste management? In the U.S. powerful municipal unions will undoubtedly maintain weekly garbage pickup for another few decades, but already municipal governments like that of D.C. can no longer manage the collection of recyclables; that part of trash collection is already handled by large corporations like Waste Management and Browning-Ferris Industries. As landfills vanish, the only reasonable solution seems to be the reduction of both household and commercial waste. Redeemable bottles and aluminum cans are but a first step; to expand recycling, a radically increased financial incentive will be needed. With planning and adequate inducement, we could develop easily collapsible, wax paper milk and juice cartons, all of uniform dimensions so that when collapsed they can fit compactly into standard garbage collection containers. And the difficult-to-handle styrofoam packing pellets, which are so difficult to discard, could be redesigned for easy disposal. These are but a few examples of ways to reduce waste bulk.

One effective way to reduce household waste would be to limit the size of the city-furnished garbage containers. Exceeding the allocated volume would cost extra and delay its collection. In the long run, it may take state and federal pressure to include the cost of disposal in all objects purchased, including automobiles which are particularly expensive to disassemble. The list of possibilities for waste disposal is endless, but I am convinced that there are practical solutions that can mitigate this ever-growing problem.

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