

“where the eighteenth century still lives,” the advertisements say—forgetting about the lawnmowers and weed-eaters that have taken the place of chomping cows and sheep; about the nonpeel, water-seal paint that keeps the buildings in a state of unwonted tidiness; about the asphalt that now lies where once were rutted, muddy, manure-laden tracks; about the garbage trucks that rumble through as often as three times a day, carting away what in former times would have festered in redolent piles. A Williamsburg that offered a real taste of eighteenth-century life would be closed down swiftly by public-health officials.

The most extreme among the critical archaeologists would hold that the past can exist *only* as a reflection of the present—much as the ship in the AT&T commercial existed as a reflection not of what it really was but of what the commercial’s creators wanted it to be. That is going too far. One can stop well short of this position and yet agree that historical reality presents limits to our kenning—and that the present is a distorting lens through which we have no choice but to look. The ignorance and misconceptions about garbage in history serve as a case in point—and as an object lesson.

From Rubbish!

By W. Rathje + C. Murphy

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CHAPTER 3

WHAT WE SAY, WHAT WE DO

When Thomas Price took command of the Sanitation Division of the City of Tucson, in 1966, he found a department whose members suffered from high rates of alcoholism and high rates of absenteeism, an unevitable safety record, and exceedingly low morale. Price, a bulky, convivial, immensely competent man, and one who shared the Hispanic roots of most of his employees, focused first on morale. From the University of Arizona’s film library he obtained documentaries about the links, via rodents and insects, between uncollected garbage and infectious disease, and he showed these films week after week to remind his workers that they were not simply clock-punchers but agents of public safety. He warned them again and again about the dangers inherent in their work—from microbes and toxic waste in household discards, to some extent, but mostly from the heavy machinery that is involved in every stage of the garbage-disposal process. (According to the Bureau of Labor Statistics, the incidence of occupational injury among sanitation workers in 1986 was 177 injuries per 1,000 workers, compared with an average that year of 77 per 1,000 workers in the entire private-

sector labor force; a study in New York City covering the period 1973–1983 found the “injury-severity ratio” among municipal sanitation workers—that is, the number of days lost by sanitation workers per incident of injury—to be equivalent to that among mineworkers.) And Price ordered workers with alcohol problems to get treatment or get out. He built a palpable esprit de corps within the Sanitation Division, and before long there was a waiting list of applicants for jobs in garbage disposal. Price’s reward came when, in 1973, he was named the director of Tucson’s entire Department of Operations.

Tom Price played a key role in the founding of the Garbage Project. When representatives of the University of Arizona’s anthropology department met with him to discuss their plans to mount a study of Tucson’s garbage, and to ask for his help, they found not the hidebound bureaucrat they feared—rigid, myopic, obstructionist—but rather an enlightened despot, a philosopher-garbage man (and a University of Arizona alumnus). “Why not?” was his response when the request to collect garbage for study was made. “People threw it out, didn’t they?” And thus it came to pass, in the spring of 1973, that the first teams of anthropology students settled in behind a row of dumpsters at the Sanitation Division maintenance yard, on South Tenth Street, where four days a week sanitation supervisors stopped by in pickup trucks to deposit fresh garbage for analysis. Tom Price, who died of leukemia in 1988, at the age of 57, was honored from the outset by Garbage Project personnel as “Santo Tomás.”

Price seemed to grasp instinctively one of the central tenets of the Garbage Project: that what people have owned—and thrown away—can speak more eloquently, informatively, and truthfully about the lives they lead than they themselves ever may. People such as Price, who work with garbage on a daily basis, seem to come to that conclusion naturally. In the early 1970s, a garbage man named Frenchy Benguerel, of Kenwood, California, made the same point during an interview with Charles Kuralt for the “On the Road” segment of the “CBS Evening News.” “Can you tell a lot about the customers from their garbage?” Kuralt asked Benguerel. “Oh, definitely,” Benguerel replied. And he went on:

You can tell what kind of wine they drink. All their letters come in and out, and who they buy through—Saks or Sears and Roebuck—and how they maintain their household. It’s better’n being a psychiatrist. I can tell you anything you want to know.

The assumption that behavior is reflected in artifacts—and, depending on the situation, in the lack of artifacts—lies at the heart of studies of what is known to archaeologists as “material culture.” Students of material culture think of physical artifacts (from the garbage in our waste baskets to the paintings on our walls) as not only helping to define us at any given moment but also as contributing to a changing of the definition itself over the course of time. A highway does not merely reflect a static pattern of traffic; it transforms the vectors of building and development. Microwave dinners and McDonald’s hamburgers do not merely reflect a new diversity in work and family; they contribute to that diversity.

Modern material-culture studies, which were prefigured in a way by pop art’s apotheosis of the commercial and the mundane, have become a recognized and legitimate research endeavor in a variety of scholarly disciplines. Archaeologists, of course, have been picking over material culture’s leftovers for years: In too many cases, those are the only clues to past behavior that archaeologists have had. But now environmental psychologists, architects, and urban planners are studying the impact of the material environment on behaviors and attitudes (and vice versa). Market researchers and consumer educators are focusing on the interrelationships among commodities, attitudes, and behaviors, because those relationships can be a key to the efficient selling of products and concepts. Sociologists are showing interest in material culture, because it can sometimes offer a way of corroborating and correcting information obtained in interviews; a way, that is to say, to circumvent the problem of “informant bias.” Indeed, within many disciplines these days, material-culture studies are viewed as an essential adjunct to studies based on interviews and surveys.

The Garbage Project, being largely though not exclusively an archaeological endeavor, pursues the aims and is heavily reliant on the techniques of material-culture studies. As noted in chapter one, the

Project grew out of an anthropology course in which students were focused precisely on the question of how to discern links between physical evidence, often fragmentary, on the one hand, and mental attitudes and patterns of behavior on the other. One elementary but memorable study of this kind was done by a student in the course named John W. Hohmann, who investigated the last reaches of a secluded, dirt-packed spur off Trail's End Road in the Sonoran desert northwest of Tucson. For purposes of analysis Hohmann imposed a grid system over a 200-foot by 250-foot area. He then conducted an inventory of the site, recording on his map the distributions of glass scatters from hundreds of broken bottles (mostly beer bottles), and the locations of 133 cans (mostly beer cans), 27 "sex objects" (mostly used condoms), 212 facial tissues, 15 articles of clothing (mostly men's and women's underwear), and 11 "trash objects" (mostly sex or movie-star magazines). Hohmann's map of the site (see Figure 3-A) produced a vividly clear picture of sexual and drinking activity conducted primarily inside of cars (no artifacts were found on the roadway itself), with fragments of glass bottles clustered close by the roadside (where the bottles had been thrown no doubt so that they could be observed to break) and cans in a perimeter farther beyond, and with sexual activities concentrated in the section of the turnoff road best hidden from the main road by a rocky knoll. Subsequent studies of a similar nature found much the same pattern at other road-end locations. John Hohmann, by the way, continued to pursue a career in archaeology. He was the leader of the archaeological team whose recent investigations of the ancient but largely overlooked Casa Malpais pueblo, near Springerville, Arizona, led to the discovery of a system of underground catacombs that had been used by a settlement of Mogollon people (a prehistoric group that vanished mysteriously in the mid-fifteenth century). The catacombs are the first to have been found north of Mexico.

While practitioners of material-culture studies tend to assume, at least in theory, that a dynamic relationship exists between artifacts on the one hand and attitudes and behaviors on the other, the precise nature of the relationship cannot always be stated, and similar patterns of physical evidence do not always indicate similar patterns of behavior. One illustration of the pitfalls involved is provided by an odd discovery made early by Garbage Project sorters—namely, that

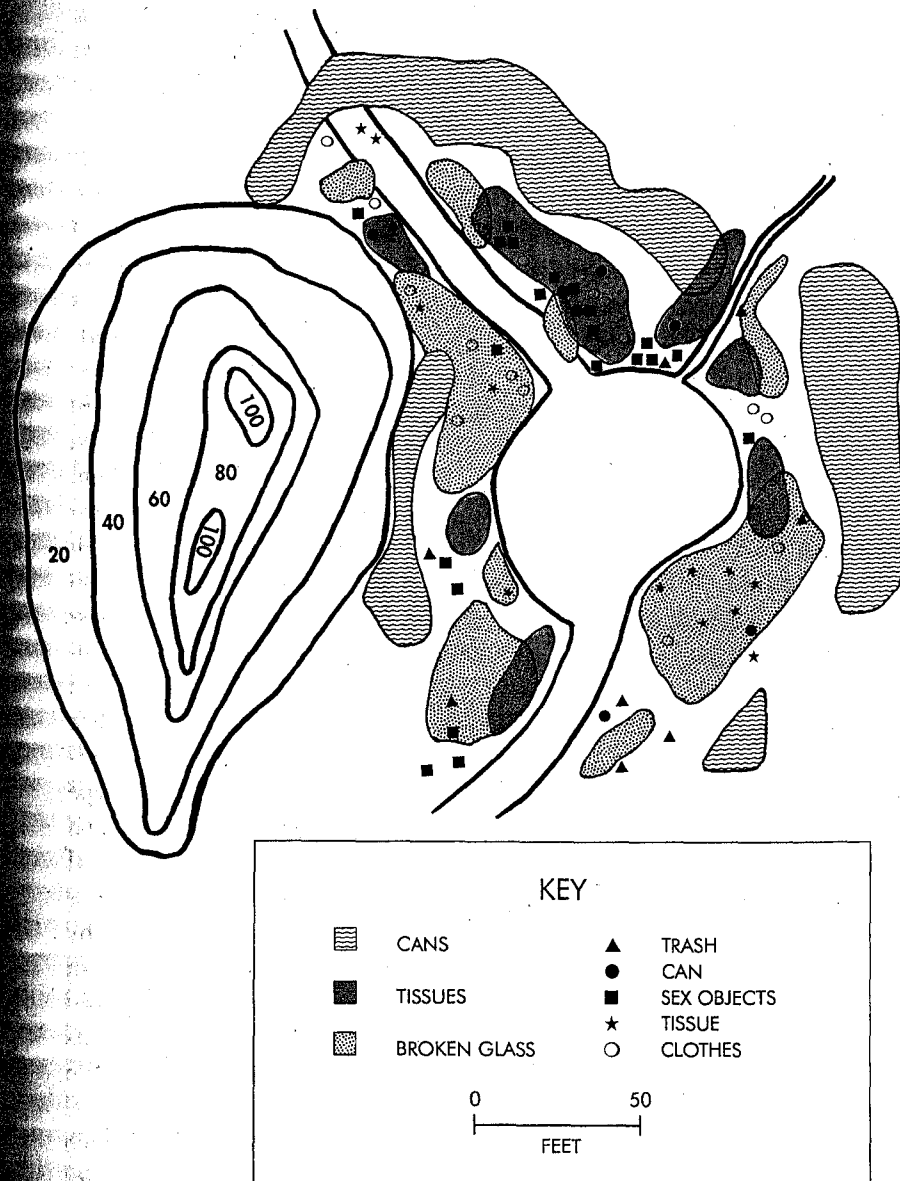


Figure 3-A. Distribution of artifacts at the Trail's End site, outside Tucson. The main road, not visible, runs to the left of the knoll.

SOURCE: The Garbage Project

National Geographic magazine and the kind of magazine known in the trade as “men’s sophisticates” (magazines like *Playboy* and *Penthouse* and the rest) almost never show up in household garbage. While the physical record in the case of both *National Geographic* and the men’s sophisticates is exactly the same—that is, no magazines—the pattern of behavior responsible for that record is probably somewhat different in each case. Subscribers to *National Geographic* tend to keep the magazines on the shelf for a long time—in many cases, literally, until death (at which point the magazines find their way into other homes or into yard sales). In contrast, copies of the men’s sophisticates often don’t get thrown away at home because people, out of embarrassment, throw them away in nondomestic garbage cans. They also get passed around—from, say, home to locker room to barber shop to gas station—and, again, wind up eventually in nondomestic garbage cans.

Still, in the face of all the complexities, and perhaps understandably, some researchers in practice have typically viewed material objects not as partners in a dynamic relationship but instead as passive reflections of attitudes and behaviors. Building on this assumption, investigators have worked to establish correlates that seek to link specific physical evidence or a specific physical milieu with a specific mindset or with specific habits and other personal characteristics. For example, a number of studies have tried to turn the type of house, furniture, clothing, and other such things that people own into indicators of social status or other ineffable qualities. (A typical result is a study like “Living-room styles and social attributes: the patterning of material artifacts in a modern urban community,” by E. O. Laumann and J. S. House; they concluded that “people with traditional decor are also more traditional in their behavior and attitudes.”) Simple studies of this kind by Garbage Project students have, among other things, attempted to correlate income level with the absence or presence of lawn art, such as plaster fawns or elves; the use of hallucinogenic drugs with odd bathroom decoration (such as black-light posters); and sexist attitudes in different communities with the size of male and female gravestones. The correlations did exist in all cases, but were weaker than might be supposed.

These are studies in search of stereotypes, and they’re fine as far as they go. The basic goal is to construct a neatly organized world in

which a certain specific aspect of material culture is isomorphic, to use an academic term that simply means “congruent,” with certain specific attitudes and behaviors. Such research is often frustrated when a specific type of material culture does not fit into neat patterns with behavior or attitudes. When that happens, one of two conclusions, or both, can be drawn: 1) our stereotypes may be too simplistic; 2) our correlates may be variable because some parts of society are in a state of flux, and so is, therefore, the relationship between the material and the behavioral. From the very outset Garbage Project researchers bore these conclusions in mind and tried to heed their implications.

That first year of the Garbage Project was one of discoveries large and small. The garbage itself was an unknown world—everything learned about it was new—and thus held the fascination that a trip up the Congo in the nineteenth century would have. One of the first discoveries was simply that a substance to which the term “slops” was applied congregates at the bottom of every paper or plastic bag into which garbage is dropped. Slops (Garbage Project code number 069) comprise a stew of such things as coffee grounds, fruit parts, rotten vegetable bits, cigarette butts, grit of unknown origin, and the sort of gooey canned mush epitomized by Chef Boyardee ravioli; somehow, in the course of every garbage bag’s journey from kitchen to truck, all of these substances find one another and intimately coalesce. The Project eventually undertook a detailed investigation of the tiny individual constituents of slops, which, based on refuse pickups from sixty-nine households in seven census tracts, were found to consist primarily of bakery products and cereal (28 percent by weight); fresh vegetable matter (24 percent); high-protein vegetables (12 percent); meat, poultry, and seafood parts (8 percent); fruit waste (8 percent); cheese and other milk products (6 percent); and fats and oils (5 percent). Most slops originate in the form of plate scrapings; the reputation of vegetables as prime candidates to become leftovers appears to be well deserved.

Another phenomenon that quickly became clear was the capacity of garbage to surprise. This was vividly brought home to researchers as the result of the discovery, by an anthropology student named

Diane Tucker, of a diamond ring amid a mass of potato peels. (The ring, a relatively inexpensive one, could not be returned, because of Garbage Project procedures to ensure that the identity of the households from which garbage for study is obtained remains unknown; it was accidentally thrown away along with other prospective exhibits for a Garbage Project museum, all of which had been stored in a special dumpster.) Most of the surprises, however, have not been so immediately obvious. They have not, in other words, tended to be the garbage equivalent of finding the Mask of Agamemnon or the cave paintings at Lascaux. Rather, they have emerged through the careful recording of each and every artifact found in each and every load of garbage, and the statistical evaluation of the results.

A good example that comes from the Garbage Project's first two seasons involves red meat. The counterintuitive nature of the findings are typical of what garbology frequently turns up. During the spring of 1973 there had been a widely publicized beef shortage in the United States. From March through September a good selection of beef in supermarkets was hard to find, and the meat was very expensive. The Garbage Project, which from the beginning has been very interested in food waste, decided to look into discard patterns of red meat to see if people's behavior changed appreciably between times of shortage and (afterwards) times of plenty. As it happens, meat is an ideal subject for investigation, because supermarket meat-counter packages are labeled with the type of cut, the weight, the price, and the date of packaging (which is usually on or very near the date of sale); it is thus possible to compare the amount of wasted meat thrown away in garbage with the amount of meat that was originally bought.

Garbage data on beef were collected over a period of fifteen months, from the spring of 1973 through the spring of 1974, and the numbers, when analyzed, revealed a strange pattern. In the months after the beef shortage ended, the rate of beef waste (cooked and uncooked, but not counting fat or bone) amounted to about 3 percent of all the beef bought. During the months of the shortage, in contrast, the rate of waste was 9 percent. In other words, people wasted three times more beef when it was in short supply than they did when it was plentiful. This conclusion seemed perverse, but the data, when checked, seemed solid. Eventually a hypothesis was put

forward to account for the odd behavior: the practice of crisis-buying. When confronted with the widespread and sometimes alarmist coverage of the beef shortage in the local and national media many people may have responded by buying up all the beef they could get their hands on, even if some of the cuts were unfamiliar. Of course, they didn't necessarily know how to cook some of those cuts in an appetizing way. More important, they didn't necessarily know how to store large amounts of meat for an extended period of time. The inevitable result in either case: greater waste. This hypothesis was buttressed by the discovery in some Tucson garbage samples, during the shortage months, of a few whole cuts of beef, which it is very likely had spoiled prior to being discarded.*

The general proposition drawn from the findings about red meat—that wastage of a food increases when that food is scarce—was unexpected, but in the context it seemed reasonable. The reaction among nutrition educators and home economists when this result was reported, however, was somewhat muted, their criticism being that the hypothesis was probably not broadly applicable to a wide range of foods. Fate smiled on the Garbage Project in the spring of 1975 by unleashing a sugar shortage. As the price of sugar and high-sugar products doubled, the wastage of those items in Tucson's garbage tripled. Because Tucson is only sixty miles from the U.S. border with Mexico, where the price of sugar had remained stable, many Tucsonans stocked up with sugar that they bought south of the border. Mexican sugar, however, is not as highly processed as American sugar; it is browner, and it turns hard quickly. Before long, hard, brown bricks of Mexican sugar began appearing in the garbage. Some Tucsonans began buying Desserta and other unfamiliar

* Further circumstantial support unexpectedly came some years later from outside of Tucson during the excavation of the Mallard North Landfill, near Chicago. As a sample of landfill waste was being emptied onto a sorting table, one of the sorters suddenly held up a large, dull-brown mass speckled with pale-white blobs and ringed by a pink-white rind. The object was a steak. A question was raised: Could the discarded steak be dated? The other contents of the sample were quickly sifted for pieces of newspaper. A page was found with the date "April 23," but the year was torn off. More garbage was sifted, and another page was found: "May 5, 1973." Then another and another, with dates from the same period. The sample had been plucked from a landfill stratum that coincided with the national beef shortage.

products made from sugar substitutes, such as cyclamates; the reviews were plainly evident in the form of unconsumed discards. Also prominent in the trash were items containing sugar that had crystallized during the course of long-term hoarding. In sum, the behavior of people in the midst of the sugar shortage corroborated the findings about red meat. The sugar shortage, more sharply than the beef shortage, also drew attention to the role that unfamiliarity with a food plays in the wasting of that food.

From the information garnered during the beef and sugar shortages the Garbage Project developed the First Principle of Food Waste: *The more repetitive your diet—the more you eat the same things day after day—the less food you waste.* In hindsight the First Principle seems simple and obvious. The waste in garbage from the standard sixteen-ounce and twenty-four-ounce loaves of sliced bread that every household buys regularly is virtually nonexistent—at most, crusts and ends; this is because common sandwich bread is used continually, meal after meal. But specialty breads—hot dog buns, bagels, muffins, biscuits, kaiser rolls—are wasted at rates of 30 to 60 percent, because they are bought less regularly and perhaps used once or twice in very specific kinds of meals before finding a place in the bread box or the back of the refrigerator to harden or decay. The First Principle helps to explain why the garbage collected from Mexican-American census tracts generally has less food waste—sometimes more than 20 percent less—than does garbage from Anglo census tracts. Mexican-American border cuisine offers a diverse array of dishes, but the ingredients are few: tortillas; beans; chunks of beef, chicken, and pork; avocados, tomatoes, lettuce, onions; red and green chili sauce; salsa. Not only is it easy to incorporate leftovers into new meals, but the staple ingredients are in a state of constant turnover.

No one is very happy about the First Principle. Nutritionists are always trying to get people to broaden their dietary horizons. Producers and marketers of food and other goods make a significant part of their living by providing novelty and diversity, and those very qualities are, as it happens, deeply appreciated by consumers. Still, gaining insight into certain basic elements of the architecture of behavior can have positive practical consequences—in this case, with respect to the reduction of food waste. Garbage Project studies indi-

cate that American families waste between 10 and 15 percent of the food they buy. In the history of the Project, of all the bags of household garbage that have been examined, only a handful have been found to be innocent of wasted food.

The Garbage Project moved from the Sanitation Division's Tenth Street maintenance yard to a site on the University of Arizona campus in 1984. Thomas Price, who was the head of the university's Hispanic-alumni association, and was well-acquainted with members of the university's board of regents, had used his gifts of persuasion to the utmost. In the lot where the Project's staff members now sort garbage there is a trailer to store equipment—scales, aprons, gloves, masks, recording forms, and so on. A ramada has also been built there, with a corrugated metal roof; two of its sides are defined by the slatted-metal fence of the lot itself, a third side is made of wood, a fourth is open but equipped with screens that can be hung when necessary to block wind or sunlight. Fresh garbage is stored in screened bins and in the kind of large freezer in which you find bags of ice at convenience stores; the freezer was brought in after members of a Garbage Project expedition to sort garbage in Milwaukee in the middle of winter noticed that frozen garbage didn't smell very much and didn't attract flies or hatch maggots. ("The freezer," says Wilson Hughes, "has done for garbage studies what the microchip did for electronics.") Garbage sorters learn to sort quickly so as to finish before the garbage has thawed.

The Garbage Project collects its garbage in different ways for different studies, but in essence the methods fall into two broad categories. The first, known as a regular sort, involves dividing neighborhoods into groups based on income levels, family size, and educational attainment (as identified by the U.S. Bureau of the Census); in each of these neighborhoods sanitation workers then collect for the Garbage Project all the garbage placed out for city pickup by randomly selected households. The duration of the periods during which refuse pickups are collected varies, depending on the study, but Garbage Project collections for some purpose are conducted from February through May and September through November, and sometimes through the summer as well. Garbage collected in this

way can be used either to compare the discard patterns of different types of neighborhoods or to obtain snapshots over time of discard patterns in the aggregate.

This regular sort is a straightforward procedure, and immensely valuable. It has yielded, for example, most of the overall data on how much of every type of food ends up as waste. The figure for the edible part of bananas, to give one example, is about 8.5 percent; for baby food, about 10 percent; for breads and cereals, as much as 15 percent overall; the figure for the much-maligned prepared-food category (which includes microwave dinners, take-out food, and packaged soups and stews) is a relatively modest 4 to 5 percent. The food category that undoubtedly has far and away the most positive public profile—fresh produce—is also far and away the biggest contributor to food waste: Produce accounts for from 35 to 40 percent of total edible-food discards by weight. This figure does *not* include thrown-away portions of produce that aren't really waste—rinds, peels, skins, and so on—which constitute a considerable category unto themselves. By weight, the inedible part of an avocado is some 24 percent of the total; of a banana, 32 percent; of a lemon or grapefruit, 50 percent. In terms of garbage generation the lowly potato peel is a powerhouse among comestibles: Of all food that is thrown away (not just “waste” but also inedible rinds and tops), potato peels account for a mighty 7 percent by weight—the largest single item in the fresh-food repertoire. Potato peels are so prevalent that they have earned the honor of a distinct Garbage Project code number (044). In terms of overall weight, edible and inedible food debris accounts for about a fifth of household garbage—a potentially substantial source of compost.

The regular sort of garbage can also point up certain broad phenomena—as, for example, that after Halloween one finds lots of candy wrappers and almost no candy in garbage, while after Valentine's Day one finds that the candy itself (along with the wrappers, which still enclose it) often gets thrown away. One Garbage Project researcher, Jeffrey Parks, used the data from several thousand random pickups to investigate whether, owing to the growing prevalence of AIDS and the well-publicized admonitions to practice safe sex, the use of condoms had perceptibly increased in homes. He found that the number of condom wrappers identified in garbage per

every one hundred garbage pickups remained stable between 1976 and 1984 but increased by 45 percent between 1985 and 1987. (Condom wrappers are used by the Garbage Project as a “marker” for the condoms themselves, because condoms are more often flushed down the toilet than thrown away in a trash can; sometimes God has mercy on garbologists.) Investigations into the use of contraceptives by women have brought disconcerting practices to light. For instance, an analysis of birth control pill dispensers found in garbage showed that a good many of the women using the pills seemed to have been using them incorrectly. One of the monthly dispensers showed a single pill missing, and it had been removed from the very middle of one row of pills. From another dispenser, every second pill had been taken.

Additional studies using Regular Sort methodology have focused on alcohol. Does the opening of a liquor store in a neighborhood that didn't previously have one effectively cause the people in that neighborhood to drink more than they used to? There is some evidence that it does, judging from a Garbage Project study by a University of Arizona undergraduate, Shannon McPherson, of the discard of bottles and cans in various neighborhoods before and after the opening of new liquor stores. Do people drink more when the moon is full, as popular folklore would have it? A Garbage Project study by Frederic Haskell, another undergraduate, of the number of beer cans and bottles discarded during the various lunar phases over a period of twelve years revealed no correlation between heavy beer drinking and *any* phase of the moon; there was, however, a correlation between heavy beer drinking and paydays.

What about the question: Do the poor pay more? That is, do poor people, perhaps strapped for cash, buy smaller amounts of products each time they shop than more-affluent people do, thereby missing the savings that buying in bulk makes possible? Economists have long suspected that this is the case; the hypothesis is supported by Garbage Project research based on a comparative study of differing neighborhoods in both Tucson and Milwaukee. Lower-income families consistently buy small-sized packages of everything from cereal to detergent; more-affluent families consistently buy the “giant, economy size.” No maker of house-brand or generic laundry detergent makes detergent available in a small, twenty-ounce container;

some of the makers of brand-name detergents do. These brand-name, twenty-ounce detergent containers are, if found in garbage at rates well above average, a telltale sign of a low-income neighborhood. The same phenomenon is visible in discard rates of large and small cans of solid food. A Garbage Project study of large families in two relatively rich and two relatively poor census tracts in Tucson during the worsening "stagflation" of the mid-1970s showed clearly that the affluent responded to hard times by increasing the amount of canned food they bought in large (bigger than sixteen-ounce) cans, while during the same period the proportion of large cans in the garbage of the poor declined by almost 50 percent, and the proportion of smaller cans rose. Such patterns of consumer behavior, caused by economic deprivation and not personal perversity, point up one more way, albeit a subtle one, in which the bonds of poverty are secured. They also point up a terrible irony with respect to the generation of garbage, at least insofar as supermarket buying is concerned: Because the ratio of product to packaging is so much higher among purchases by the affluent than among those by the poor, the poor end up throwing away more packaging per ounce of useful product than the affluent do. This fact could have implications for humane planning. From time to time there is serious talk about the possibility of adding a "product-disposal charge" to the cost of packaged consumer items to help defray the cost of their disposal. Whether such charges would be a good idea remains an open question, but a consideration of their disproportionate impact on the poor ought to be taken into account.

The second methodology employed by the Garbage Project combines the garbage sorts of the first methodology with an additional element: verbal "self-reports" about personal behavior, elicited by interviews or recorded in daily diaries, from the very people whose garbage is being collected and sorted. In this way not only can discard patterns be matched one-to-one with a household's socioeconomic characteristics—income, family size, and so on—they can also be matched against what the people who have been doing the throwing away think or say they have been throwing away. Conducting what is known as a "matched study," of course, means that

the Project must secure the active cooperation of all the households involved for a period of as long as five weeks—not an easy proposition. In the Garbage Project's two-decade history of matched studies only a few of the people asked to participate have objected to having their garbage collected and sorted (one person who did object was a new mother of twins, who worried about the sorters having to deal with all those diapers; she relented when assured that the sorters had seen worse), but as many as four people out of five, perhaps not surprisingly, refuse to participate in the essential second part of the research effort, the personal interview. As noted earlier, the anonymity of participants in matched studies is guaranteed. The garbage records and interview data from any given household are correlated one to the other only by number codes. Names and addresses are not retained by the Garbage Project.*

Studies that use this second methodology—studies that compare a household's perceptions of its garbage with the actual garbage that the household generates—always reveal some telling human quirks. Foremost among them, as one might suspect, is the tendency of people to be unreliable sources of quantitative information about their behavior. What people claim in interviews to have bought and consumed, to have eaten and drunk, to have recycled and thrown away, almost never corresponds directly or even very closely to the actual remnants of material culture in their Glad or Hefty bags (see Figure 3-B).

Consider the matter of food waste. In 1980 and 1981 the Garbage Project conducted an intensive study of food waste in sixty-three households. The study was done on behalf of the U.S. Department of Agriculture, which for obvious reasons has long had an interest in the ultimate disposition of the nation's food. What the USDA did not have was any notion of the accuracy of the information it had gathered on food waste by means of its Nationwide Food Consump-

* They are, however, retained in a file drawer of the anthropology department at the behest of the University of Arizona's Human Subjects Committee, which, like its counterparts at most universities, was set up to protect the rights of people who become the object of social-science research. The file drawer holds forms signed by participants in matched studies, bizarrely acknowledging their understanding that their anonymity is assured. There is still no way, however, to associate specific individuals with the garbage for which they are responsible.

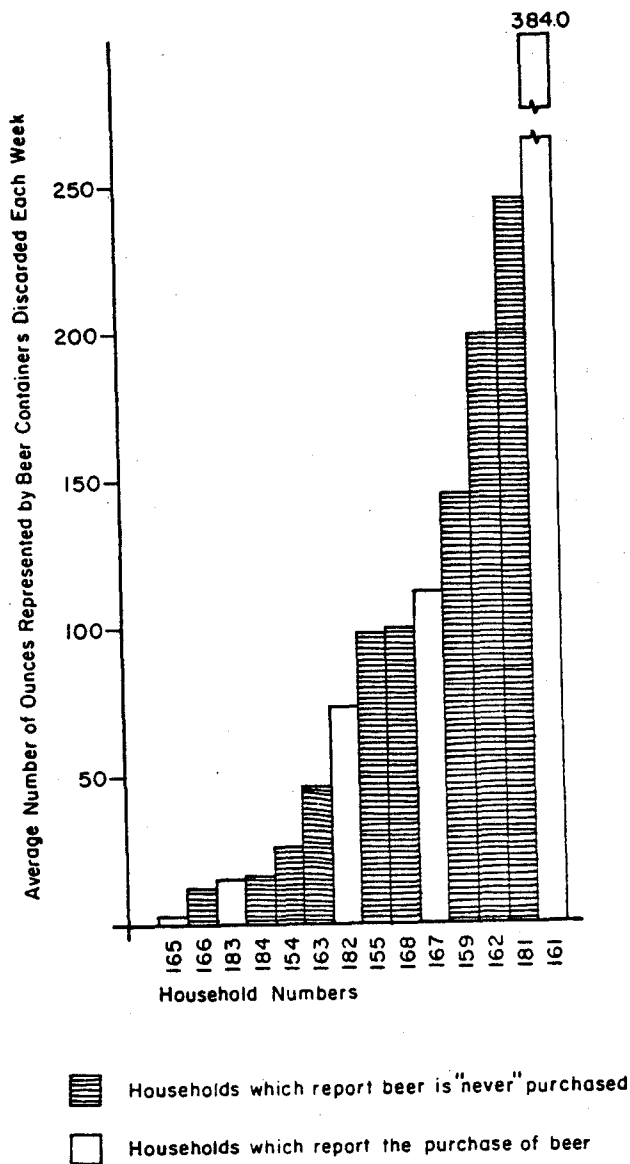


Figure 3-B. Garbage Project research frequently points up the unreliability of certain kinds of information acquired by means of surveys. A case in point involves the results of interviews with members of many of the households represented above, households which have in common the fact that the garbage from every one of them was found to contain beer bottles or beer cans. The data here were gathered over a five-week period and are presented as a weekly average.
SOURCE: The Garbage Project

tion Survey—that is, by asking people what they could tell interviewers about food waste in their own homes. For its own food-waste study the Garbage Project collected and sorted garbage for five weeks from all of the sixty-three sample households, which were each identified by a code number. For the purposes of a self-report, however, the households were divided into four groups. All of the respondents in these households were carefully briefed as to what was to be considered “food waste” (as opposed to unavoidable “food preparation debris,” such as peels and rinds, bones and skin), according to the Garbage Project’s definition. And all of the respondents knew that university students would be combing through their garbage and keeping precise records of what was found.

None of the households in any of the four groups reported anything like the actual amount of edible or once-edible food that the sorters pulled from their garbage. The members of group one delivered their self-reports through interviews, in which they were simply asked to recall how much food they had wasted in the previous week. No one reported much wasted food at all, although Garbage Project sorters in fact found in group one’s garbage an average of two-and-a-half ounces (more than an eighth of a pound) of edible or once-edible food per household member per day.

The members of group two were asked to keep written records for one week of the amount of food they wasted (in the manner of households that keep diaries of television viewing for the A. C. Nielsen Company). All of the households agreed to comply, but at the end of the collection period group two logged only a handful of reports of wasted food, and the food in these instances was described as mere scraps. Meanwhile, Garbage Project sorters were likewise turning up more than an eighth of a pound of wasted food per person per day in group two’s garbage.

The members of group three were given scales and asked to weigh any food they wasted over a one-week period of time, and to keep records of the weights day after day. You will surely have guessed how much food group three reported wasting—not very much. The actual amount was again a little more than an eighth of a pound per person a day.

Group four proved to be something of a surprise. The households in group four were provided with boxes of plastic bags and asked to

use the bags over a period of three days to store any food that would normally have been thrown away. Garbage Project personnel visited the group-four households every night to collect the bagged food waste. After three days the amount of food waste collected in the plastic bags turned out to be quite a lot: about one-quarter of a pound per person per day. And yet the sorters picking through group four's garbage cans still found a lot of food waste—an eighth of a pound per person per day, just as they had found in the garbage of groups one, two, and three. The respondents did aim to please. When the Project seemed to be checking up on people's waste habits, the self-reports were tailored to reveal households in the best possible light. When the Project, as in the case of group four, seemed to want wasted food, it got wasted food. Meanwhile, everyday food-waste behavior continued unabated.

The Garbage Project has, over the years, conducted a variety of analyses of matched data for the Department of Agriculture, all related to the evaluation of the Nationwide Food Consumption Survey; among the results has been the identification of several behavioral syndromes that seem to occur repeatedly.

One of these is the Good Provider Syndrome: Almost uniformly, homemakers report that their families consume considerably more food than sorters can actually find evidence for in the household's garbage. They also report consuming much more food than is indicated by the sum of the personal self-reports provided by the individual members of the household. Presumably, the homemaker is overreporting—no doubt unconsciously—in order to demonstrate that the household is amply supplied with life's necessities. (Perhaps for a similar reason, homemakers tend to underreport the amount of prepared foods the family uses, and to overreport the amount of fresh produce employed in cooking meals from scratch.) It is also the case that individuals in their self-reports are minimizing the volume of certain kinds of food intake—a phenomenon that might be called the Lean Cuisine Syndrome. People consistently underreport the amount of regular soda, pastries, chocolate, and fats that they consume; they consistently overreport the amount of fruits and diet soda. The following tabulation, compiled by Susan Dobyns, who is the Garbage Project's research director, is taken from one of the Project's USDA studies, and shows the amounts of various food

items that were overreported and underreported. It is a sad catalogue of self-delusion:

	%		%
	UNDERREPORTED		OVERREPORTED
Sugar	94	Cottage cheese	311
Chips/popcorn	81	Liver	200
Candy	80	Tuna	184
Bacon	80	Vegetable soup	94
Ice cream	63	Corn bread	72
Ham/lunch meats	57	Skim milk	57
Sausage	56	High-fiber cereal	55

A phenomenon related to the Lean Cuisine Syndrome is the Surrogate Syndrome: People may provide inaccurate consumption reports about themselves, but if you ask them to describe the behavior of a family member or even a neighbor, they tend to squeal with chilling accuracy—especially when the behavior involved has a negative image. With respect to alcohol intake, for example, most people underreport their drinking by 40 to 60 percent; a surrogate in the same household who does not drink alcoholic beverages and who is asked to report on the habits of members of his family will get intake levels right to an accuracy of about 10 percent.

In sum, the data generated by the Garbage Project in its cross-check of the USDA's Nationwide Food Consumption Survey reveal that much of the information in the government's vaults about food consumption and waste may be shaky stuff indeed. But perhaps reassuringly, the data also indicate that a great deal of what we have all suspected about certain tendencies in human nature appears to have been suspected with no little justification. As T. S. Eliot once observed, "Human kind cannot bear very much reality."

Garbage Project behavioral studies always seem to come back to the subject of meat, no doubt because meat is at once a key element in the American diet, a primordial element in psychological perceptions of well-being, and a comestible about which many people harbor feelings of deep ambivalence. In addition, as noted earlier, the nature

of its packaging is, for Garbage Project purposes, at once valuable and compelling. Of course, the remains of meat in fresh garbage or at a landfill are not the most pleasing archaeological artifacts that one can handle. The packaging is bathed in blood and in a kind of clear slime whose viscosity feels to the touch like that of molten gristle. The associated artifacts include the familiar absorbent deli pad, or "meat diaper," that drips sanguinary rivulets on the garbage-sorters' aprons. This is the kind of experience that sorting entails, and there's no getting around it. In the sorting yard, as the garbage is dumped onto tables, one person in thick gloves picks through it, looking for all the world like a surgeon with his hands deep in a patient's entrails, and calls out information to a second person, standing some distance away, who carefully records it (see Figure 3-C). Once entered into a computer's memory, the data are available for analysis.

Meat-wrapper labels provide a demonstration in microcosm of the tenuous grasp many of us have on even the most familiar of objects and behaviors. How are meat weights recorded on a package? In pounds and ounces, most people will say. In fact, they are written in pounds and tenths of pounds and hundredths of pounds. Two market researchers, Helen C. Brittin and Dale W. Zinn, found in the course of a 1977 survey that 40 percent of all shoppers interviewed as they left a supermarket misreported the amount of meat they had just bought by significant amounts. The Garbage Project has found a similar pattern in comparing what people say they have prepared and eaten in the way of meat with what is indicated by discarded packages, bones, and cut-away fat. Some people simply can't remember cuts or quantities; others either consciously or unconsciously misreport.

One of the most consistent patterns with respect to meat is what can be called the Spike Effect. When asked about quantities of meat bought or prepared, respondents tend to round off the numbers into pound (sixteen ounce) or half-pound (eight ounce) increments—who knows what .17 pounds really means? The pervasiveness of this tendency is striking; for example, when asked about their consumption over a certain period of time, in ounces, of such things as red meat, poultry, cheese, saturated fats, and pork bacon, in 80 percent of all cases respondents gave figures that were divisible by eight,

COLLECTION			NAME OF RECORDER		DATE OF ANALYSIS	
TOTAL TRACT WEIGHT (LBS.)	MO.	DAY	NAME	DATE	FLUID OUNCES	SOLID OUNCES
A46	02	08	2	9/91	34	35
MATERIAL COMPOSITION						
TRAJECT TOTAL PGB. A46 1/2						
ITEM CODE	NO. OF ITEMS	NO. OF OUNCES	COST	WASTE (GRAMS)	SPECIAL IND.	TYPE
23	011	256	39.40	41		2P
24	024	1	41	45		IN
25	098	1	42	46		ST
26	097	1	43	47		PR
27	095	1	44	48		HA
28	002	1	44	49		TA
29	140	1	44	50		TA
30	140	1	44	51		TA
31	009	1	44	51		TA
32	027	1	44	51		TA
33	134	1	44	51		TA
34	070	1	44	51		TA
35	079	1	44	51		TA
36	055	3	44	51		TA
37	111	14	44	51		TA
38	048	30	44	51		TA
39	001	1	44	51		TA
40	045	1	44	51		TA
41	073	2	44	51		TA
42	136	1	44	51		TA
43			44	51		TA
44			44	51		TA
45			44	51		TA
46			44	51		TA
47			44	51		TA
48			44	51		TA
49			44	51		TA
50			44	51		TA
51			44	51		TA
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91			44	51		TA
92			44	51		TA
93			44	51		TA
94			44	51		TA
95			44	51		TA
96			44	51		TA
97			44	51		TA
98			44	51		TA
99			44	51		TA
100			44	51		TA

Figure 3-C. A typical recording form. In the course of the Garbage Project's history, forms like these have been filled out by upwards of 500 student garbage sorters. The Garbage Project's database includes information from some 55,000 of these documents.

SOURCE: The Garbage Project

which of course is half the number of ounces in a pound. (Oddly enough, researchers run into a similar phenomenon, known as “age-heaping,” when they look at large numbers of self-reports, as rendered on Census Bureau forms, of people’s ages. In this case the spikes come at ages divisible by five, and reflect rounding off.)

What is more, the direction of the rounding, up or down, is not random. In upper-income neighborhoods and upscale retirement communities—places where concern for healthful living was evident from the number of health-related magazines in garbage and other suggestive indicators (for example, the relatively large proportion of shelf space in local supermarkets reserved for health-related products, such as high-fiber cereals, and the presence in supermarkets of automated blood-pressure gauges)—people tended to round down the amount of beef and pork they reported eating. In lower-income and middle-income neighborhoods, where the eating of meat is often viewed as an indicator of status, people tended to round up.

One important Garbage Project study involving red meat was focused on the question of fat consumption over time. Meat fat has always been a problem for human beings. For hunters like those who butchered the bison at the Olsen-Chubbuck site 8,500 years ago, the problem was not too much fat but getting enough fat in their diet during the winter, when animals (and, consequently, the people who ate them) grew lean. In recent times, of course, the problem has been the opposite: a surfeit of fat in our diet all year long. Fifty years ago people often ate their beef and pork cuts fat and all, and many nutritionists have wondered about the extent to which Americans today may have altered their habits in this regard. The Garbage Project’s refuse sorts offered one way to investigate the issue: There is discarded fat to weigh, there are wrapper labels to indicate type of cut and original weight, and there are USDA conversion tables to determine the amount of separable fat that a cut of meat initially had. With all this information it was possible to get some idea of basic trends over a period of years in the trimming and discarding of meat fat. (Bear in mind, however, that it is not possible to determine absolutely what percentage of all fat is not being eaten by people; dogs, cats, and garbage disposers gobble up much of the pertinent data before sorters can get their hands on it.)

What the investigation revealed was that between 1976 and 1982,

the percentage of fat trimmed off meat and then discarded held stable. Beginning in 1983, the percentage of fat trimmed off and discarded suddenly doubled in all of the Garbage Project’s sample neighborhoods, including a high-income community in the San Francisco Bay area and a retirement community south of Tucson, and meat-fat discards have remained at this elevated level ever since. Why the greater discard of fat? There had been no diminution of the dog and cat population during the course of the study, and the proportion of homes with garbage disposers in the sample neighborhoods had actually increased. The only variable that could be found to explain this widespread shift in behavior was the publication, at the end of 1982, of the National Academy of Science’s report *Diet, Nutrition, and Cancer*, and the subsequent onslaught of reports in the media identifying fat in the diet, particularly fat from red meat, as a significant cancer risk factor.

People, it would seem, were beginning to behave a bit more sensibly. And yet, as a closer look soon made clear, people are incorrigible. For even as Americans have been separating more fat from their fresh meat (and also, it was discovered, buying less fresh meat overall), they have been eating a higher percentage of red meat in processed forms (hot dogs, bologna, salami, bacon, sausage), which contain large quantities of hidden fat—far more, for example, than in the marbling of a steak. In other words, while people are buying fewer fresh cuts of beef, and trimming more fat off what they do buy, they are compensating for their good behavior—no doubt unwittingly—by ingesting meat fat on the sly. Among middle-income households, it may be that the hidden fat in convenience meats and processed meats now accounts for 70 percent of all meat fat consumed. Plainly, people have somehow grown accustomed to thinking of “fat from red meat” as synonymous with “separable fat from fresh red meat”—in the process overlooking a second (and ubiquitous) category of meat fat.

Hardly a Garbage Project study has been conducted that does not depict the average American as fundamentally unaware of some of the most familiar activities in which he or she indulges—and unaware, too, of how odd, even disturbing, are the consequences of

some of those activities. One example involves the disposal of hazardous household waste. In 1986, 1987, and 1988, Garbage Project sorts were conducted in New Orleans, Phoenix, Tucson, and Marin County, California, in order to identify the types (for example, oil-based paints and stains, photographic chemicals, oven cleaners) and quantities of hazardous waste that are discarded in everyday household trash. It turns out that about 1 percent of all household garbage by weight consists of hazardous waste—not very much, one might think, until one remembers that this 1 percent, when multiplied by, for example, the 88,000 households in Marin County, yields an annual total of 64,700 pounds of toxic chemicals going into Marin County's two landfills.

While the proportion of hazardous waste in household garbage does not seem to vary among neighborhoods with sharply different socioeconomic characteristics, the composition of the hazardous waste was found to vary considerably. The hazardous waste from low-income households consisted disproportionately of car-care items: motor oil and gas additives especially. Middle-income households, in contrast, seem to lavish less attention on their cars and more on their homes; their hazardous waste consisted disproportionately of paints, stains, varnishes, and various other products associated with a dedication to home improvement. The garbage placed out by households in affluent neighborhoods reflected the greater attention paid there to lawns and gardens: It contained unusually high amounts of pesticides, herbicides, and fertilizers.

Needless to say, homeowners, when interviewed, had little idea of what kinds and quantities of hazardous waste they were throwing away (if they were aware that they were throwing away any such waste at all). In affluent Marin County, homeowners reported that car-care products probably accounted for most of the hazardous waste they generated; they rarely mentioned lawn-care products; in fact, their garbage looked a little like the remains of an agribusiness yard sale. It should be noted, by the way, that the First Principle of Food Waste seems to have an analogue, the First Principle of Household Hazardous Waste. As the Garbage Project's Douglas Wilson has determined, products such as cleansers and detergents that are used on a regular basis exhibit very little waste; products such as sealants and glues that may have been bought for a single specific

renovation job around the house account for an immensely disproportionate share of household hazardous waste.

In the course of conducting these toxic-waste studies Garbage Project researchers noticed an unwelcome phenomenon. In many places across the country, including Marin County, local communities sponsor special collection days when residents can bring any household hazardous waste that they want to get rid of to a centralized location, from which the waste will be transported either to a recycling facility or to an official Subtitle C hazardous-waste-management facility. In 1986, in order to determine how effective these special collection days actually were in reducing hazardous waste in household refuse, the Garbage Project sorted samples of Marin County garbage one month before and two months after the county's first well-publicized "Toxics Away!" Day. The results were contrary to what had been expected. The garbage discarded *after* "Toxics Away!" Day contained more than twice as much hazardous material by weight as the garbage that had been discarded *before* "Toxics Away!" Day. Somehow, "Toxics Away!" Day, which was intended to channel Marin County's household hazardous waste into the hands of people who would dispose of it safely and professionally, also had the effect of increasing the amount of such waste that was simply being sent to the county landfill.

Why was this the case? The culprit was probably the intense media campaign designed to make county residents aware of the collection day. Because the collection was held on only one day, and no future collection days were announced, it seems likely that many homeowners who had been made newly aware of the hazardous waste in their homes but had missed the collection day decided to rid themselves of their hazardous waste in the conventional manner: They just threw it out. The "Toxics Away!" Day phenomenon has since been confirmed by studies in both Tucson and Phoenix. The solution to this problem would seem to be either to have more-frequent collection days or a permanent collection facility.

As the foregoing suggests, it seems at times as if garbage is capable of wielding some sort of malign influence: that its very presence acts to bend rational minds to irrational ends, and to thwart the noblest

of efforts. But, to be fair, garbage on occasion has also figured in happier (if minor) behavioral episodes. Michael Owen Jones, a specialist in folklore and folk art at the University of California at Los Angeles, provided an example in the course of a slide presentation he once gave at an academic conference, in which he sought to demonstrate how patterns in certain mundane daily communal activities could in themselves constitute a kind of folk tradition. Jones's attention (and camera) had been drawn to the curious ways in which his neighbors in a Los Angeles suburb put out their trash for collection. Apparently the residents of the neighborhood, where garbage had to be left out for collection in front by the road (there were no alleys), visible to all, had been gradually overcome by a sense of public shame, or perhaps a mild dementia. First one homeowner, then another, then a few others began spending considerable time and energy arranging their garbage in pleasing ways:

My neighbor to the north, for instance, [slide], has a matched set of plastic containers. He places them in a perfect line along the edge of the curb, lids in place to contain the trash neatly, and the handles exactly aligned. When on one occasion this fall, after having raked fallen pine needles from his yard, he had too much trash for his set of containers [slide], he lined up his cans as usual and behind them—using a single type of container of the same size and shape and color, just like his plastic cans—arranged paper bags filled with needles. A neighbor across the street usually lines his cans with plastic leaf bags, and arranges the four cans in a square. Another homeowner, whose driveway is bordered by a low wall, and whose mailbox is near the entrance to the drive [slide], places his trash cans to either side of the mailbox in a visually balanced arrangement.

And as Jones himself went on to report, even he, the coolly distant observer, was ultimately unable to resist the force that held the neighborhood in its thrall: For there came a day, he admitted, when he replaced his delapidated mongrel garbage cans [slide] with a handsome matched pair. The Joneses had kept up.

P A R T I I

The Landfill Excavations