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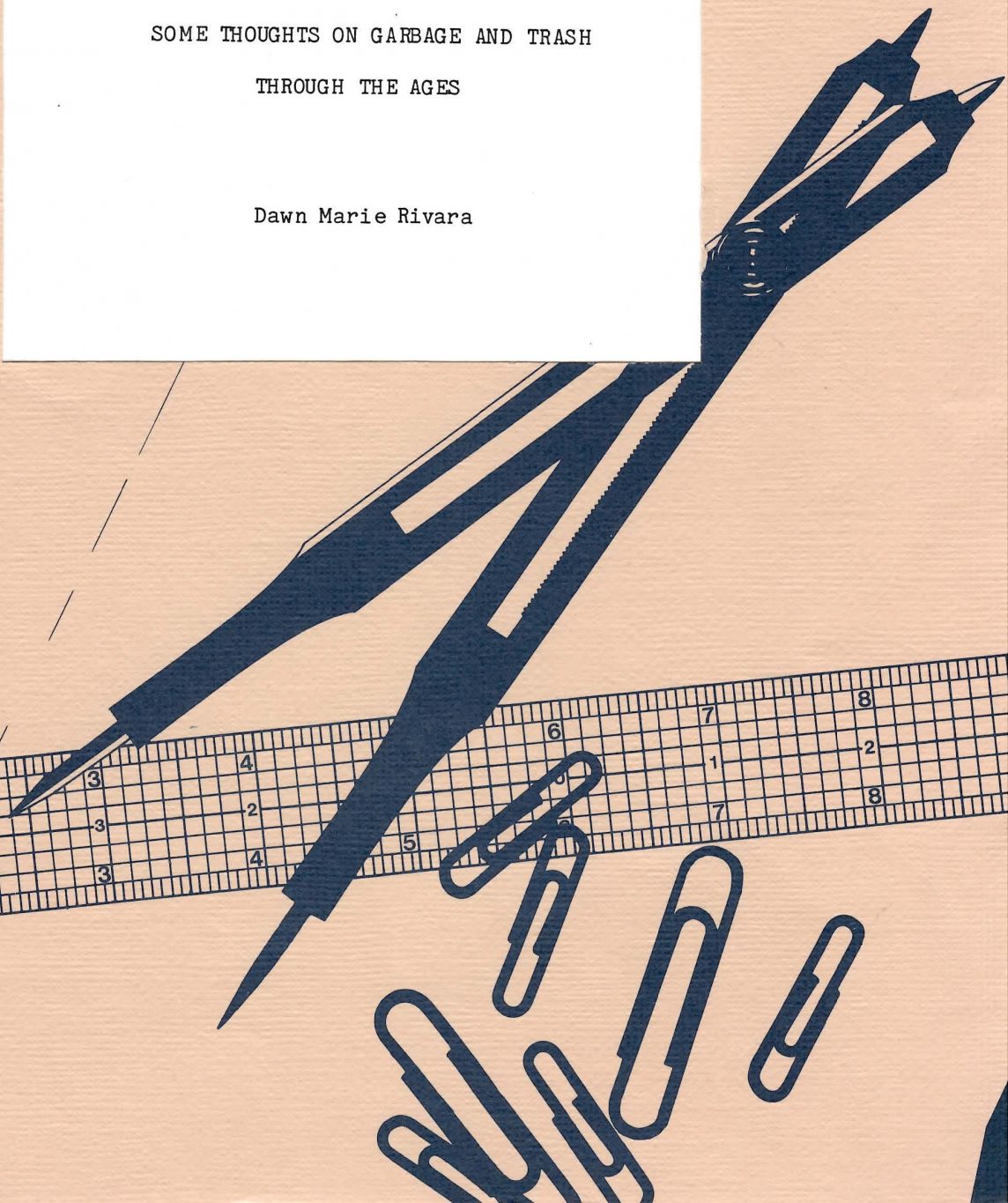
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SOME THOUGHTS ON GARBAGE AND TRASH
THROUGH THE AGES

Dawn Marie Rivara



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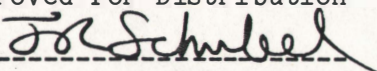
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Introduction

According to Marx (1971), there is no such thing as waste in the "natural" environment. In Marx's natural environment, matter is decomposed and used to create new life and to fertilize growing plants and animals. During man's early history, he was a nomadic hunter and his wastes (i.e. feces, bones and ash from fires) were decomposed rapidly by natural processes. If however, a tribe was exceeding the natural decomposition capacity, it would move to another site rather than clean up. Later, when man began to stay in one place, he saturated the soils with large amounts of wastes. He also polluted the air of his cave with a constantly burning fire. As man became more "civilized" the tribes turned into the first towns and cities and pollutants accumulated until man could no longer live on the land, breathe the air and drink the water.

Early Greece and Rome

According to Mumford (1961), "for thousands of years city dwellers put up with defective, often quite vile, sanitary arrangements, wallowing in rubbish and filth they certainly had the power to remove, for the occasional task of removal could hardly have been more loathsome than walking and breathing in the constant presence of such ordure." This description of man's filthy cities dates back to the ancient Greek and Roman civilizations. In ancient Troy wastes were left on the floors of homes or thrown into

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the streets (Melosi, 1981). The garbage that was deposited in the house and then buried caused the floor levels to rise and forced the people to raise their ceilings and doors. Greek mythological stories tell of the gods who had to intervene on man's behalf to purge him of his filth. In one story, Augeas, King of Elis, had a herd of three thousand oxen whose stalls had not been cleaned out for thirty years so Hercules brought the rivers Alpheus and Peneus through them and cleansed them thoroughly in one day (Marx, 1971). Athenians also threw their unwanted babies into the city's dump, a practice similiar to the Spartan methods of exposure. It wasn't until 1500 B.C. that the Greeks passed laws prohibiting the dumping of trash into the streets (Melosi, 1981). Although Rome had some sort of refuse disposal system, it wasn't effective due to the large numbers of people living within the city. Dumping garbage into the streets became the most commonly used disposal method and the city was filthy. The only garbage dump was located downwind and had a sign indicating where to throw the garbage. This sign still stands as does part of the wall (called Dung Gate) which enclosed the dump.

Indian Tribes

"History does not unfold; it piles up and is dug out" (Adams, 1976). This is so true of the midden heaps of ancient man. These heaps furnish archeologists and paleo-historians extensive information about early man and his

lifestyle (Hagerty et al. 1973). Examples of these heaps are the shell middens which are found throughout coastal regions. These shells can be dated as far back as 5500 years ago and the heaps are many feet deep. Because the shells keep the soil acidic and prevent decay, the middens contain great archeological information about long lost Indian tribes. Archeologists find a tremendous number of oyster, clam, mussel and scallop shells which suggests that these animals were the main source of food and possibly a major source of income for the Indians. Tools, jewelry, animal bone and Indian skeletons are also found in these heaps (Koppel, 1985). Human skeletons are common in other types of mounds as well. There are two possible explanations for the association of skeletons with middens. Burial of bodies in waste may have been done for convenience because it is easier to excavate holes in loose trash rather than hard soil. The corpses may also have been buried in wastes in order to be in touch with the things used in their previous lives (Afton, 1971).

In the Pueblo culture, trash mounds faced east and all of the bodies buried in them faced east as well. If a person died during cold weather, they would be placed in an unused room and then trash would be placed on top forming a new trash mound (Afton, 1971). Thus archeologists study ancient garbage more than ancient tombs and temples because so much more can be learned about a civilization from garbage remains.

Ancient Waste Disposal Systems

Although many cities wallowed in filth, others did practice good sanitation habits. For example in 2,500 B.C. the city Mahenjo-Daro in the Indus Valley constructed homes with built-in rubbish chutes and trash bins along with an effective drainage system and a scavenger service (Melosi, 1981). In Harappa, Punjab, homes had bathrooms and the ancient city of Babylon had drains, cesspools and sewage systems (Melosi, 1981). In 2,100 B.C. in the Egyptian city of Heracleopolis, refuse was collected from the rich and religious sectors and dumped into the Nile. In 200 B.C. China had a sanitary police force that removed the dead bodies of humans and animals from the streets. They also had traffic police who oversaw street sweeping (Melosi, 1981). The Jewish people of Jerusalem also had laws to promote cleanliness. In 1600 B.C. Moses wrote a code of sanitary laws including one that called for every Jew to remove his garbage and bury it far from the house. The Talmud also issued tough sanitary laws that called for the washing down of the streets every day (Melosi, 1981).

Despite these advances in sanitary waste disposal techniques, the dumping of trash was still dependent upon the individual and each person used inefficient and unorganized methods. Thus as cities grew so did the amount of filth and trash. By 1400 A.D. the mounds of waste beyond the city gates of Paris were so high that they posed as an obstruction to the city's defense (Melosi, 1981). By 1597

the breakwater in Naples was so badly clogged with solid wastes that the city built a new one rather than clean the old one (Melosi, 1981).

The Evolution of Modern Waste Disposal Methods

Growth of Waste Disposal Problems

With the start of the Industrial Revolution cities began to swell into uncontrollable sizes. Overcrowding in London, England resulted in horrendous living conditions. People lived any where they could find room, even if sanitary facilities were not available. For example there was only one toilet for every 212 people in Manchester England (Melosi, 1981). People were filthy and didn't bathe. Queen Victoria was said to have bathed once a year! The most common method of waste disposal was dumping it onto the streets and into the waterways; especially into the Thames. In Charles Dickens' novels we are given graphic exposure to this horrifyingly filthy city full of dirty homes and disgusting people. In Oliver Twist, for example, Fagin's home is described as "having walls and ceilings (that were) perfectly black with age and dirt... the spiders had built webs in the angles of the walls and ceilings" and "the mice would scamper across the room." Fagin is described as having "matted red hair" and he is dressed in a "greasy flannel gown" (Dickens, 1966). The smoke from the factories blackened all of the buildings and created terrible stench. This stench was called "the smell of money" by the factory barrons, and prompted the old Yorkshire saying, "Where

there's muck there's brass" (Marx, 1971). Due to the smoke from the factories, John Evelyn submitted "Fumifugium: or the Inconvenience of the Aer and Smoake of London Dissipated" to King Charles II in 1661. It was one of the first major proposals towards the elimination of air pollution. In this paper Evelyn prescribes planting sweet smelling trees as one solution to the air pollution problem. Although this prescription is not very scientific, more plants would have provided more oxygen (provided that they didn't die) in that smog filled city.

Melosi (1981) wrote, "not unlike their counterparts in Europe (the U.S.) suffered an environmental crisis characterized by crowded tenement districts, chronic health problems, billowing smoke, polluted waterways... and mounds of putrefying garbage." Rotting, putrifying heaps of garbage were on the streets of both the lower and upper classes. Since the streets were considered to be a perfectly legitimate dumping place for trash, it was piled high in front of the most elegant homes. The pigs, dogs and rats along with the natural process of decay, were the only sanitation workers at that time. Despite the law passed by the burghers of New Amsterdam in 1657 that prohibited the dumping of garbage into the streets, in 1842 during his visit to New York City Charles Dickens tells of the pigs roaming the streets of Broadway, sifting through the garbage. (Some cities even had laws protecting these pigs and other garbage eating animals! Armstrong, 1976.)

Besides the everyday accumulation of household wastes, there was also large amounts of horse feces and urine on the streets. As the horse was the main means of transportation, it wasn't uncommon to have 1,000 horses deposit 500 gallons of urine and ten tons of manure on the streets in an eight hour work day (Armstrong, 1976). Thus 82,000 horses, cows and mules in any given city would produce 600,000 tons of manure every year (Armstrong, 1976).

Disease was rampant in America due to unsanitary conditions. In the play 1776, Abigail Adams tells her husband of their family's condition, "Our children all have dysentery, little Tommy is turning blue, little Abby has got the measles and I'm coming down with the flu; they say we may get small pox..." It wasn't uncommon for people to contract cholera, yellow fever, small pox, typhoid and typhus during these days. It wasn't until 1890 that scientists discovered the connection between the unsanitary conditions caused by the garbage that accumulated in the streets and the contraction of disease (Armstrong, 1976).

Waste Collection and Disposal Systems

Despite these unsanitary conditions, there were a few early Americans who tried to remove their solid wastes in a sanitary manner. Thomas Jefferson for example developed a system of underground tunnels at his Monticello home in Charlottesville, Virginia whereby all of his household wastes (including human wastes and the ashes from the fireplaces) were carried in buckets by slaves far away from the main

house. Ben Franklin developed the first sanitation system for any American city in Philadelphia in 1792 whereby slaves carried the household wastes to the Delaware River and dumped them in. In 1795 the Corporation of Georgetown (Washington D.C.) passed a law forbidding people to throw their garbage into the streets. Now they had to take it away themselves or hire a private carter. In 1800 President John Adams hired a private carter to take away the White House garbage. Although the President's garbage was collected, all other government workers burned their garbage. The odors so sickened President Jefferson that he later extended the carting service to the other government workers as well. By 1856 in Washington D.C., all garbage (with the exception of ash and combustible materials) was picked up off the streets at the taxpayers expense (Armstrong, 1976).

Perhaps the most famous sanitation engineer of his times was Col. George E. Waring Jr. In 1895 he became commissioner of street cleaning in New York City (Armstrong, 1976). Here, according to Melosi (1981), "his brief stint as street cleaning commissioner... from 1895-1898 formed a bridge between the primitive collection and disposal practices of the nineteenth century and the increasingly sophisticated methods of the twentieth century." Col. Waring developed a sanitation department of sweepers called the White Wings. The White Wings wore white outfits, had a sense of pride in their work and were respected by the

public. According to the History of the Public Works in the U.S. 1776-1976, these workers were paid a generous salary of two dollars per hour and they had a quasi-union where suggestions could be offered and grievances aired.

Unlike the corrupted Tammany Hall Administration, Waring's office was free from political intervention. He always gave a job to "a man instead of a voter", (Armstrong, 1976) and thus he had a competent working team. Waring enlisted the aid of children into his crusade for a clean New York. These children acted as "the eyes, ears and noses for the department in discovering unsanitary conditions and their perpetrators" (Melosi, 1981). They formed their own leagues (e.g. Juvenile Street Cleaning League) and were ranked according to the services they performed (Melosi, 1981).

In 1896 Waring established the practice of separating household garbage into different cans. By doing this, the city was able to sell or recycle certain items and bring in extra income through the salvage plants which were established on Staten Island, Rikers Island and Barren Island. However these plants were abandoned in 1915 due to the odor they emitted, the economic problems and other public complaints.

The first crematory (incinerator) was built in England in 1874. It burned at low temperatures and emitted a lot of smoke and odor. In 1885 in Allegheny, Pennsylvania, the first crematory in the United States was built. It was considered to be a sanitary method of waste disposal and an

instant cure to all solid waste problems. (This idea probably stems from the medieval use of fire as a method of purification.) All the newly built incinerators were placed in the middle of cities thus reducing the cost of transporting garbage to other sites and reducing the amount of manure in the streets from the horse-drawn refuse collection vehicles. The incinerators also gave the cities extra income by having its steam sold to power companies. At this time, no one foresaw the dangerous consequences of the incinerators' emissions.

In 1940 horsedrawn garbage trucks were replaced by motorized trucks and cities began to use sanitary landfills. Before the organic wastes reached these landfills, most of it was fed to pigs. This wasn't a new idea (Colonial farmers had gotten rid of their food scraps in the same manner) but it was a profitable one. In 1955 however, this practice was stopped due to the spread of vasicular exanthema.

Composting of solid wastes for large scale disposal was first attempted in India using Sir Alber Howard's "Indore Process" (American Public Works Association, 1966). Organic wastes were layered and turned every three months to promote decomposition into a humus-like substance. The first patented composting process was developed in Florence, Italy by Dr. Giovanni Beccari. This process involved a combination of anaerobic fermentation and aerobic decomposition of wastes (American Public Works Association, 1966). The first

and largest composting plant was built in the Netherlands in 1932. This plant used the Van Mannen process which is a modification of the Indore process.

Modern Attitudes Toward Waste and Waste Disposal

Today in America we tend to classify the garbage collector's job as the "lowest of low" occupations. In India garbage men have their own pariah caste! (Adams, 1976) While this type of attitude tends to give these workers a low self-image, there are men who find "numerous sources of self esteem deriving from the job itself- for example, speed in completing a day's work, cleanliness, the ability to turn someone else's discards into profit, and especially pay" (Walsh et al. 1982). There is another type of garbage man that also has a low status job and does the dirty work of society. This man is the zoological garbage collector that picks up animals and animal carcasses. He is (as he likes to be called) the animal control officer or (as we call him) the dog catcher. Like the garbage man the dog catcher must pick his trash up off the streets and deposit it (the dead dogs) at the city dump every night (Palmer, 1978).

Trash plays many different roles in different societies throughout the world. In America there are people that make constructive uses out of garbage. Larry Fuente of Medocino, California uses trash to create art objects which command thousands of dollars from the buyers (White, 1983) while the "bag" people of the urban areas of the country sort through garbage to find useful items which are some-

times sold. A mountain of trash named "Mount Trashmore" was constructed in Virginia Beach and is now used for recreational purposes (White, 1983). The city of Mountain View, California filled a flood plain with garbage and like Virginia Beach uses it for recreation (White, 1983) A Dump Festival is celebrated in Maine that includes the crowning of a "Miss Dumphy" to the young woman that dresses in the most unique form of trash (White, 1983). In the desert in Tucson, discarded and obsolete military aircraft accessories are stored in order to preserve them for a later reselling to civilians. In 1982 the military recovered \$28.00 for every \$1.00 originally spent on these parts (White, 1983). A trash monument dedicated to our throwaway society called "Worlds Apart" was constructed by Nancy Rubins. It was composed of many materials found in the trash including hairdryers, clocks, air conditioners, lamps, pots, pans, televisions and fans (White, 1983). Builder Michael Reynolds constructs houses out of trash. He uses aluminum cans as bricks, tops of turpentine cans as door handles and 50 gallon drums as windows. These homes are easy to build and are energy efficient (White, 1983). The law enforcement authorities in the U.S. also have some constructive uses for trash as do the criminals. The police sort through the trash of suspected criminals in search of incriminating notes while law offenders scavenge through the garbage for credit card carbons. Credit card numbers, taken from these carbons, are used for phone order merchandise.

Although archeologists have long known trash to be a source of data, now modern sociologists are using trash as data also. William Rathje has developed a method known as garbaeology whereby garbage is used to show relationships between material culture and associated behavior (Rabow et al., 1982). It is an inexpensive, inconspicuous method of certification which permits sampling of subsets of populations that are difficult or impossible to interview (Rabow et al., 1982). Researchers sort through the garbage of a given area and determine people's living habits through the materials they discard. Some people object to this procedure because their trash may contain incriminating notes, important legal papers and materials of sentimental value.

Other countries of the world also have some constructive uses for garbage. In Denmark, Sweden, Switzerland, the Netherlands, and in France, garbage is burned and the heat generated is used to produce steam. This steam is sent through pipes and heats the houses (White, 1983). In Shanghai China they use the methane gas emitted by their composted trash in order to cook their food (White, 1983). In Tokyo some people collect old newspapers and magazines in exchange for toilet paper. They are called "Chirigami Kokan" or the toilet paper exchangers (White, 1983). In Calcutta people boil and grind up old bones for fertilizer. They also wash and sell used coal (White, 1983). Despite all of these admirable reuses of trash, it is the garbage dump scavengers throughout the world (yes, including the

U.S.) that make the greatest reuses of all. It is estimated that one to two percent of the world's population is supported directly or indirectly by refuse (White, 1983).

In Cairo the Zabbaline Coptic Christian minority collect and sort the trash in order to reuse and resell it. They also feed the organic trash to their pigs as pigs are an important source of their income (White, 1983). On Manila's Balut Island refuse dump and in Sri Lanka the people swarm to the dumps after the trucks arrive in order to see what they can collect and sell (White, 1983). In Mexico City the scavengers belong to a union and pay dues in order to get choice spots at the garbage dumps (White, 1983). In Cali there are about 700 scavengers (called "vultures" by their population) that work off of the city's trash. These pickers are between the ages of five through seventy and most have no higher than a second grade education. They are on the job for more than ten years of their lives. Garbage scavengers have an occupation that can support them whenever they need to use it and that is more than we can say of other more socially acceptable jobs. Scavenging is important work for an industrial economy as most if not all of the items used for recycling are provided by the scavengers (Birbeck, 1978). According to Birkbeck (1978), "Garbage pickers are part of the recycling network."

According to the History of Public Works in the U.S. 1776-1976, ever since the beginning of the 1900's, "fourty five cities deposited refuse on land, nine burned it in

dumps, eighteen plowed it into the ground, fourteen dumped it in the water, forty one fed it to stock, twenty seven incinerated it, nineteen employed reduction processes and eleven used "irregular methods". Little has changed with these solid waste disposal methods over the years thus calling attention to the lack of any new, efficient and ecologically sound ways to dispose of our garbage.

One major solution towards solving the solid waste problem would be to change our society's way of thinking about material items. As Dorothy L. Sayers writes in her *Creed and Chaos*, "A society in which consumption has to be artificially stimulated in order to keep production going is a society founded on trash and waste and such a society is a house built upon sand." In the United States we advertising to promote shortlived fads and fashions. Companies believe in planned obsolescence and bargain items that break in order to spur profit. They produce convenience foods with excess packaging as 40% of America's household refuse is this packaging material. Almost every food and nonfood in the supermarket is packaged this way, as are all the foods in fast food restaurants (White, 1983). Because it is easier and cheaper to replace used items rather than repair or recycle them, we've become a throwaway disposable society disposing of diapers, razors, "seven million autos, 20 million tons of waste paper, 25 million pounds of toothpaste tubes, 48 billion cans and 26 billion jars and bottles" (Marx, 1971). (Aboriginal hunters rank as cleaner creatures than we simply because they are unable to dirty their living

spaces to the degree that we can (Marx, 1971 .) Americans tend to recycle their refuse only before the recyclable items are mixed with the regular garbage and only if it is economically feasible (White, 1983).

Throughout man's history he has been faced with the problem of disposing his garbage in an efficient, ecologically sound manner. In over 2,000 years man has not been able to solve this dilemma. Perhaps one day, he will.

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