Garbology

INTRODUCTION

BRIEF BIOGRAPHY OF EDWARD HUMES

Born in Philadelphia, Pennsylvania, and educated at Hampshire College in Amherst, Massachusetts, Edward Humes began his career as a newspaper journalist. In 1989, he won a Pulitzer Prize for beat reporting, and within a few years, he transitioned from focusing on newspaper journalism to focusing on book-length nonfiction. Some of his most noteworthy titles include *Garbology*, *Mississippi Mud*, *No Matter How Loud I Shout*, *A Man and His Mountain*, and *Beyond the Snitch Tank*. His books span a wide range of topics, with a particular focus on true crime and, more recently, sustainability. They have also received awards and been frequently included on books-of-the-year lists. Humes currently lives in Southern California with his wife, Donna Wares, who is also a journalist and author.

HISTORICAL CONTEXT

Garbology was published in 2012, and most of the book deals with events in the couple of years before then. Perhaps the most important context for these events (covered in the early chapters of the book) is the rise of consumerist culture in the United States. The invention of plastics, TV advertising, and the booming economy after World War II all encouraged a culture of wastefulness that directly connects back to the overflowing landfills of 2012 (which remain an issue in the present day). Another event that factors heavily into the modern problems of consumerism and waste is the Industrial Revolution (which is generally dated from 1760-1840), as well as its later period or what is sometimes called the Second Industrial Revolution. During the Second Industrial Revolution (which spanned from 1870-1914), mass production and fossil fuel energy first became standards, leading to unprecedented levels of waste and pollution, particularly in urban areas.

RELATED LITERARY WORKS

Humes was influenced by literary journalists of the mid-to-late 20th century, including Tom Wolfe (*The Electric Kool-Aid Acid Test*), John McPhee (*Looking for a Ship*; *The Ransom of Russian Art*), and Joan Didion (*Slouching Towards Bethlehem*). More recently, he has mentioned the influence of socially conscious nonfiction like *Factory Girls* by Leslie T. Change, *Fast Food Nation* by Eric Schlosser, and *Common Wealth* by Jeffrey Sachs, all of which were written just a few years before *Garbology* by writers who would've been Humes's contemporaries. *Garbology* itself became influential, particularly after being chosen for several campus-wide reading programs. The issues raised in the book continue to be relevant and written about, attracting coverage from newspapers around the world. Adam Minter's *Junkyard Planet: Travels in the Multi-Billion Dollar Trash Trade*, for instance, explores where garbage goes once it's thrown out, while journalist Susan Freinkel focuses specifically on plastic in her book *Plastic: A Toxic Love Story*.

KEY FACTS

- **Full Title:** Garbology: Our Dirty Love Affair with Trash
- **When Written:** Early 2010s
- **Where Written:** Southern California
- **When Published:** 2012
- **Literary Period:** Contemporary
- **Genre:** Nonfiction
- **Setting:** The United States in the 2010s
- **Climax:** Several climate-minded startups get sued by big polluter companies, right as they're on the verge of success.
- **Antagonist:** The status quo and consumerists, like the plastic bag industry and J. Gordon Lippincott
- **Point of View:** Third Person

EXTRA CREDIT

Road Rage. Humes is an outspoken critic of cars, calling their central place in American life "insane." He notes that if the modern U.S. were a war zone, its car-filled highways would make it the most dangerous war zone of all time, with one year of car-related deaths being higher than one year of fatalities from Vietnam, Korea, Iraq, Afghanistan, the War of 1812, and the American Revolution combined.

Dog Person. Edward Humes supports animal adoption and helped rescue three greyhounds: Simon, Pirate, and Romeo.

PLOT SUMMARY

The book begins with the image of the Gastons, a couple of hoarders on the South Side of Chicago who, in 2010, had to be literally rescued from their home because of all the trash in it. Though their behavior may seem extreme, in fact, the average American at that time was generating **102 tons** of garbage over the course of a lifetime. The only real difference between hoarders and normal Americans was that hoarders didn't hide their **addiction** to creating large quantities of garbage.

Author Edward Hume breaks *Garbology* up into three separate parts, with the first part focusing on the problem of trash, the

second part focusing on investigating that problem, and the third part focusing on possible solutions to the problem. First, Hume shows how trash has always been a problem for human societies, but he reveals that the issue really came to a head in major cities in the early twentieth century. Among these cities, New York City had some of the worst sanitation and urgently needed a solution. George E. Waring, a former Civil War colonel, stepped up to fill this void, hiring his own "army" of street cleaners and creating a standardized sanitation program that became a model for other urban centers around the world.

The real origin of the modern U.S. trash problem, however, seems to be tied to the rise of consumerism, which began in the middle of the twentieth century. Consumerism was championed by people like the advertising consultant J. Gordon Lippincott, who helped create the logos for iconic American brands like Campbell's Soup and Betty Crocker. Lippincott and proponents of consumerism promoted the virtues of spending money on new things, buying with credit, and throwing out old items before they were used up.

The rise of consumerism coincided with the rise of plastic manufacturing. Though plastic was originally touted as a miracle material that might actually save the environment (since it's a synthetic substitute for natural resources), the problem is that after plastic is used up, it doesn't go away. Supported by a multibillion-dollar plastic bag industry with serious lobbying power, plastic continues to be a major polluting force. In 2011, plastic bags were floating above the massive Puente Hills landfill (outside Los Angeles) looking like seagulls and also going into the oceans, where they became part of the massive floating trash heap known as the Pacific Garbage Patch.

With major companies like Waste Management generally moving slowly on sustainability issues, the problem of solving the U.S.'s garbage crisis often fell to normal people. Unless they lived right by a landfill, most Americans had very little idea where all their trash went, and sometimes it was hard or even impossible to find out. This meant first step in solving this crisis was to find a way to measure it. Efforts like Bill Rathje's archaeology-inspired garbage digs and the MIT Trash Track team (which attached GPS chips to trash to see where it went) helped people better understand the current state of trash in the U.S., which could easily get confusing.

Many of the proposed solutions for the U.S. garbage crisis came from people with entrepreneurial ambitions. Andy Keller, Bea Johnson, and Tom Szaky and Jon Beyer all founded companies that focused not just on selling products but also on educating people about the broader state of garbage in the U.S. Though their efforts sometimes attracted criticism or even lawsuits, ultimately, they each achieved some level of success and built a foundation for others to work with.

Hume ends the book by giving a list of his own five best pieces of advice for people trying to cut back on waste: 1. *Refuse* (to buy or accept unnecessary junk); 2. *Go Used and Refurbish*; 3. *Stop Buying Bottled Water*; 4. *No More Plastic Grocery Bags*; and 5. *Focus on Cost of Ownership* (that is, understand that "cheap" objects cost more than durable, long-lasting ones in the long term). He asks readers to send him their own suggestions for sustainability.

CHARACTERS

MAJOR CHARACTERS

J. Gordon Lippincott – J. Gordon Lippincott was an advertising consultant who was involved in the creation of some of the most recognizable American branding and advertising, including the Campbell's soup label, the Chrysler logo, the Betty Crocker spoon, and the General Mills "G." Beyond his firm's creations, he is perhaps best known for helping to spread the idea of consumerism in the United States, a movement that many Americans embraced (although there were prominent critics like Vance Packard). Previously, thrift had been considered one of the most important American qualities, but Lippincott helped promote the opposite idea, that in fact it was right and patriotic to buy new things and to throw out old things even before they were all used up. Many, including *Garbology* author Edward Humes, believe that the U.S.'s current trash crisis can be traced back directly to the consumerism promoted by people like Lippincott, who emphasized the short-term joys of buying new things without considering the long-term consequences of a wasteful lifestyle. In this way, Lippincott represents the dangers of not planning for the future.

George E. Waring – George E. Waring was the man appointed in the early twentieth century to help tackle New York City's massive waste and sanitation problems. A former Civil War colonel who asked his employees to salute him, Waring brought a military-style discipline to sanitation. He hired an army of street cleaners who wore matching white uniforms, which instantly became iconic and were parodied in comics and cartoons. One of Waring's most important innovations was discovering that some discarded materials could actually be reused, creating an early version of recycling. His efforts were very successful in cleaning up New York, and as a result, he set a template that was used in other cities around the world. Waring represents how governments can take decisive action to solve waste-related problems, particularly when they put the right people for the job in charge.

Bill Rathje – Bill Rathje was arguably the first "garbologist," and he earned this title by taking a research approach to trash that borrowed techniques from more well-established disciplines like archaeology. In 1973, Rathje founded the Garbage Project, which looked directly at evidence from garbage to try to disprove popular misconceptions about waste. By sifting

through waste, Rathje attempted to find objective ways to measure public policies about trash, as well as finding out information about people that was only possible to obtain through trash. Though not all of Rathje's endeavors were successful, on the whole, he and his teams helped people visualize just how huge the scale of the U.S.'s trash problem was, as well as provided other important insights about what people consume. By 2011 Rathje had retired and was pessimistic about the U.S.'s future, believing that it was in the declining phase of a civilization and its resources would soon become scarce. Still, his work was taken up by a new generation, including former proteges like Sheli Smith. Rathje represents the necessity of fully understanding a problem before one can successfully tackle it—and how important unconventional research methods can be in this endeavor.

Mike Speiser (Big Mike) – Mike Speiser was a worker at the Puente Hills landfill, which was located outside of Los Angeles. Puente Hills was one of the biggest, most technologically advanced landfills in the world, even offering tours to the public, earning itself a reputation as the Disneyland of waste management. Speiser was skilled at this work and enjoyed it, operating industrial-grade machinery to help manage mountains of trash. Speiser represents how much work goes into managing the U.S.'s waste and how, while this work is hidden from many people, it becomes very visible when you're on the front lines.

Mary Crowley – Mary Crowley was a teacher who became a sea captain and dedicated her life to attempting to solve the trash problem in the Pacific Ocean. Her nonprofit, called the Kaisei Project (after the Japanese for "ocean planet") investigated bold solutions for removing plastic from the oceans, including some that other experts have deemed too expensive or not technologically feasible. Nevertheless, some of Crowley's ideas showed promise, particularly a ramp-like contraption that helps capture plastic from ocean water. Crowley's work helped draw attention to the dire state of pollution in the Pacific Ocean and helped illustrate the challenges of trying to deal with pollution after the fact (as opposed to focusing on reducing consumption to prevent pollution in the first place). Her project offered hope that perhaps there is room for motivated outsiders to find solutions that experts have overlooked.

Tim Pritchard – Tim Pritchard was a Seattle resident with no special connection to garbage until he began to volunteer with MIT's Trash Track, a program that tracked trash by using GPS technology taken from recycled cell phones. Pritchard became a valuable part of the team due to his knowledge of Seattle's different neighborhoods, which helped the MIT team find interesting garbage to track. Pritchard represents how the U.S. garbage crisis has been made worse by people's ignorance of where trash goes (which often allows them to ignore the problem). He also represents how normal people can get involved with solving the trash crisis, showing how even seemingly ordinary people can make surprising contributions.

Andy Keller – Andy Keller was the founder of ChicoBag, a startup based around a reusable grocery bag that represented one of the earliest efforts in the U.S. to push back against the proliferation of plastic bags. Keller started as a software engineer, and he developed ChicoBag after his desire to live outside the big city led to him being forced out of his old job. Later, Keller invented the "Bag Monster," a supervillain costume made up of plastic bags that he used to teach schools about waste. Keller's success was sometimes met with hostility, particularly from the multibillion-dollar plastic bag industry, but the lawsuits aimed at him actually ended up raising his business's profile in the long run. Keller represents how with some persistence, ingenuity, and luck, one person can make a difference in the trash crisis.

Miriam Goldstein – Miriam Goldstein was an ocean scientist who came from a younger generation than Mary Crowley, and who was more of a scientific insider than Crowley. Goldstein and her colleagues studied the Pacific Garbage Patch, learning that it was not in fact one big "island" of trash but in fact a whole wide region filled with chunks of pollution. Goldstein was particularly concerned with the effect of this pollution on ocean life, and her research helped prove that despite plastic's reputation as a "miracle material," its effects on ocean wildlife were anything but miraculous.

David Steiner – David Steiner was the CEO of Waste Management, the largest garbage company in the U.S. Before Steiner's time as CEO, Waste Management had a bad reputation, as it was caught polluting and illegally dumping during the 1980s and 1990s. Steiner tried to distance the company from the scandal by promoting utopian ideas about how trash might one day be so useful that trash companies pay people for the privilege of taking it. Critics of Steiner and companies like Waste Management have argued, however, that despite this utopian talk, little has been accomplished to change landfill culture in the United States. Steiner represents the practical challenges of implementing comprehensive waste reform in the U.S., particularly when such large companies have a stake in it.

Deborah Munk – Deborah Munk helped run the artist-in-residence program at a San Francisco garbage dump, which attracted ambitious artists like Niki Ulehla. Though the artist-in-residence program started in the 1990s as a novelty, it quickly proved popular and benefited from a California law that required local governments to divert waste from landfills. Munk took over the program after a chance meeting with an old professor. She helped expand it to include an even wider variety of artists, in order to help capture the broad scope of what makes up the U.S.'s trash.

Bea Johnson – Bea Johnson was an au pair from France who went on to found her own company focused on personal

sustainability. After her family was temporarily forced to live in a small apartment, she decided she liked it and that she wanted to create her own "Zero Waste Home." While some criticized her sustainability ideas for being superficial, many of her critics seemed irrationally angry because they felt that by focusing on the home, Johnson was attacking their own consumerist values. Johnson represents the role that individuals and households can play in responding to the U.S. garbage crisis.

Tom Szaky and Jon Beyer – Tom Szaky and Jon Beyer were two Princeton students who collaborated to found TerraCycle, a company that used worms to recycle food waste into fertilizer. The project expanded from a business contest entry into a multimillion-dollar business. As it grew, it attracted negative attention from Miracle-Gro, which viewed TerraCycle as a competitor. Miracle-Gro tried to put TerraCycle out of business with lawsuits, but ultimately, these lawsuits only drew more attention to TerraCycle. Szaky and Beyer's experience shows how the fight for a more sustainable future often pits underdogs against giant and wealthy corporations—though the small underdog companies sometimes have unexpected advantages.

Vance Packard – Vance Packard was a contemporary of the advertising consultant J. Gordon Lippincott, and at the time, he was perhaps the most vocal and widely read critic of the growth of consumerism across the U.S. Packard argued that from a long-term economic perspective, durability and conservation were much more important than the short-term pleasures of consumerism. While Packard's books sold well, ultimately the consumerist ideas of advertisers like Lippincott proved to be more widely influential.

Charles Moore – Charles Moore was an ocean researcher who, like Mary Crowley, took an interest in pollution in Pacific waters. In 1997, Moore avoided conventional sailing wisdom and deliberately sailed into the doldrums (the areas with low wind due to ocean currents), and in the process discovered the massive plastic pollution that came to be known as the Pacific Garbage Patch. Though he was not the first to raise concerns about plastic or about ocean pollution, his article on the subject helped raise awareness and was many people's first exposure to the existence of a Pacific Garbage Patch.

Sheli Smith – Sheli Smith was a student of foundational garbologist Bill Rathje. She helped expand upon his work, focusing particularly on education and public awareness through a school program that started local but quickly expanded to other schools. Smith demonstrated how solving the U.S. trash crisis is a job that will get passed down through the generations—at least until a real solution is found.

Nickolas Themelis – Nickolas Themelis was a prominent waste-to-energy advocate. Like many waste-to-energy advocates, he believed that turning old trash into energy was the best option from a practical, environmental, and economic perspective. Like Andy Keller and the TerraCycle founders (Tom Szaky and Jon Beyer), Themelis believed that contemporary U.S. culture was too wasteful, and that the real solution would take a massive cultural shift.

The Gastons – The Gastons were a family on the South Side of Chicago who, in 2010, had to be literally rescued from all the trash in their home because they were compulsive hoarders. Though their situation might seem extreme, in fact, they generated no more trash than a normal family—they just didn't hide it as well as most people do. The Gastons provide a vivid, visual example of the **102 tons** of trash that every American generates in a lifetime.

MINOR CHARACTERS

Harm Huizenga – Harm Huizenga was a Dutch immigrant in Chicago who founded the company that would eventually become Waste Management, though in his time, it was just a small family-run business. He eventually left the business to his son-in-law, Dean Buntrock, and his nephew H. Wayne Huizenga.

Dean Buntrock – Together with H. Wayne Huizenga, Dean Buntrock was responsible for taking a small family-run business founded by Harm Huizenga and, by acquiring other companies, turning it into the multimillion-dollar company Waste Management, the leading U.S. garbage company.

H. Wayne Huizenga – Working with Dean Buntrock, H. Wayne Huizenga helped take his uncle Harm Huizenga's family business and turn it into the multimillion-dollar Waste Management, the leading U.S. garbage company.

Niki Ulehla – Niki Ulehla was an artist at a San Francisco garbage dump's unconventional but highly successful artist-in-residence program. Ulehla was working on a piece inspired by Dante's *Inferno*.

Zhang Yin – Zhang Yin was China's first female billionaire; she achieved this by finding a way to export the U.S.'s trash to China. Her experience shows not only the volume of trash generated by the United States, but also the huge amounts of money involved in managing waste.

TERMS

Consumerism – Consumerism originally promised that people could improve their lives by buying the latest inventions, but today the term is often used negatively to describe cultures that value cheap, disposable objects over more durable, lasting ones. Consumerism originated in the middle of the twentieth century, and it is connected to the rise of television advertisements and plastic manufacturing.

Gyre – A gyre is something that spins or swirls, like a vortex. In the context of oceanography, it refers to a system of ocean currents that go in a circular pattern (due to forces like the

wind and friction). The Pacific Garbage Patch is the result of mostly plastic pollution getting caught in a gyre.

THEMES

In LitCharts literature guides, each theme gets its own color-coded icon. These icons make it easy to track where the themes occur most prominently throughout the work. If you don't have a color printer, you can still use the icons to track themes in black and white.

HIDDEN COSTS OF WASTE

Throughout his book *Garbology*, Edward Humes repeats the statistic that, over the course of a lifetime, the average American generates **102 tons** of trash. Though extreme hoarders on reality TV may seem like exceptional people with an **addiction** to trash, in fact, the only thing that makes them unique is that they don't hide how much trash they generate. For most Americans, the real cost of trash is hidden after it gets picked up by the garbage truck (or is littered away). Unless they live nearby, they don't see the towering trash mountains of landfills like Puente Hills outside of Los Angeles, where workers like Big Mike manage garbage with industrial-sized equipment. The problem is so bad that even experts don't know where all the trash goes.

Beyond the fact that U.S. garbage is often literally hard to keep track of, there are other hidden costs as well. For example, when some cities across the U.S. started banning or taxing plastic bags, many people complained that environmentalists had taken away something that used to be "free." In fact, however, plastic bags were never free: around 2011, they were costing retail companies about $4 billion annually, and these costs were passed on to the consumer. Similarly, throughout the 1970s and 1980s, the company Waste Management seemed to be disposing of garbage cheaply and efficiently, but in fact, it was just shifting costs from itself onto the government and citizens, in the form of illegal dumping. In turn, this led to pollution that was expensive to clean up. In *Garbology*, Humes argues that in order to solve its growing trash crisis, the U.S. has to look *directly* at how much waste it generates. He also argues that, while the process of reducing waste will be painful, it often makes good economic sense because of the hidden costs of inaction.

CONSUMERISM VS. CONSERVATION

According to Edward Humes in *Garbology*, the modern U.S. trash problem has its genesis in new ideas about consumerism that took root in the country around the middle of the 20th century. Perhaps the biggest proponent of this consumerist movement was J. Gordon Lippincott, an advertising consultant who made it his life's goal to replace the traditional American value of thrift with the new value of consumerism. The concept of throwing things out before they're used up is a relatively modern phenomenon, and while consumerism exists in many forms around the world, Humes argues that it has had a particularly large impact on the U.S., especially when it comes to garbage.

Partly as a backlash against this consumerism, a new conservation movement also arose in the U.S. in the 20th century. From the beginning, there were critics like Vance Packard who promoted the virtues of more durable goods, and more recently, there have been environmentalists like Mary Crowley, the explorer and conservationist who has chronicled the negative impact of disposable plastic products on ocean habitats. Though these conservationists are frequently outnumbered and ignored, Humes believes that they ask essential questions about wastefulness in American culture—and that with every American generating an estimated **102 tons** of trash in a lifetime, such questions will quickly become impossible to ignore. On the question of consumerism vs. conservation, Humes doesn't hesitate: while he concedes that consumerism seems convenient, he believes it is ultimately self-destructive, and that the future of the U.S. will depend on people embracing the more sustainable, less wasteful ideals of conservation instead.

THE POWER OF INDIVIDUALS

In Edward Humes's *Garbology*, one of the biggest problems that trash reformers face is that their opponents are often large corporations with a lot of money and political influence. The plastic bag industry alone is worth billions of dollars, and it employs teams of lobbyists and public relations experts who can wield major influence with politicians and even the general public. Against such powerful opposition, it would be easy to get discouraged, but Humes argues that, in fact, individuals have a lot of power to change how the U.S. handles its trash. Tim Pritchard, for example, was just a regular Seattle resident, but his knowledge of local neighborhoods made him an invaluable volunteer for the MIT-based Trash Track program, which allowed researchers to follow garbage's path with unprecedented accuracy. Similarly, Andy Keller, Tom Szaky, Jon Beyer, and Bea Johnson were all just regular individuals before they founded companies that directly challenged the prevailing ideas about trash in the U.S. These companies, while not large enough to compete directly with the biggest American polluters, nevertheless often grew large enough to threaten them in other ways. The negative responses that these start-ups received, sometimes in the form of lawsuits, often had the opposite effect and unintentionally boosted the profiles of the smaller companies. While none of the people profiled in the book worked alone—they were always part of teams or communities—they nevertheless made quantifiable impacts through their own efforts. When Humes

ends *Garbology* with a call for readers to submit their own sustainability suggestions, the message is clear: no one is too small to get involved with fixing the U.S.'s trash problem. In his book, Humes acknowledges the challenges trash reformers face, particularly from better-funded opponents, but he remains optimistic that reform is possible and that sometimes all it takes is one motivated person.

MONEY AND POLITICS

As Edward Humes shows in *Garbology*, the history of garbage in the United States is often directly connected to the history of politics in the United States. With the industrialization of the U.S. in the late 19th century, garbage and pollution suddenly became a major problem for many people across the country, particularly in urban centers like New York City. Solving these problems often fell to elected or appointed government officials, perhaps most notably George E. Waring Jr., whose sanitation work in New York City set a template for other sanitation efforts in cities around the world. The efforts of government officials like Waring was often directly shaped by, and in many cases hindered by, powerful, well-funded organizations. These organizations ran the gamut from the Tammany Hall political machine (which used its influence to run New York City politics for decades) to the modern plastic and fossil fuel industries (which wield tremendous influence over politicians through lobbying and campaign donations).

Perhaps the political issue Humes covers in the greatest amount of detail is waste-to-energy plants. These plants, which turn normal trash into electrical energy, were a growing trend in the U.S. in the 1970s and went on to become a major part of waste management in other countries like Denmark. Nevertheless, by the 1980s, the U.S. saw increasing resistance to waste-to-energy plants, some of it from locals who opposed having massive, potentially pollution-spewing incinerators in their backyards. While these concerns were valid, many opponents of waste-to-energy didn't realize that their efforts would have the unintended side effect of creating massive landfills in their backyards instead, like the Puente Hills landfill outside Los Angeles. Ultimately, Humes argues that money and politics have stopped the U.S. from implementing some of the most viable options for managing the trash crisis, including waste-to-energy plants.

SYMBOLS

Symbols appear in **teal text** throughout the Summary and Analysis sections of this LitChart.

102 TONS

The weight of 102 tons represents the amount of trash that every American generates over the course of a lifetime. Though it is a real number based on statistics, it is also a metaphor, both of how much weight and space people's trash takes up as well as how much of that waste is hidden from view for most Americans (who, Humes suggests, would probably be shocked to learn how heavy all their waste is). By choosing to give a specific weight for all this trash instead of an estimate, he emphasizes the concrete nature of this waste and forces the reader to imagine it as a real mass of material, rather than just an abstract statistic. Beyond this, the number 102 isn't itself significant (and Humes even mentions in the epilogue that for much of his writing process he used a lower specific number—it was only the release of new information that forced him to revise his estimate to 102 and revise the book as a result). By picturing the sheer size of something that weighs 102 tons, Humes encourages readers to understand that landfills may be acceptable short-term solutions for waste, but that they will quickly run out of room if people continue to generate trash at such a high rate.

ADDICTION

Throughout *Garbology*, author Edward Humes describes the U.S.'s relationship with trash as an addiction. While this relationship doesn't fit the medical definition of addiction, metaphorically, the comparison helps emphasize how deeply entrenched certain practices are in the U.S. Many addiction treatment models center around the idea that addicts are in a state of denial and that an addict's first step to getting help is admitting that they need help. This mirrors Humes's view of the U.S., which he believes has become so influenced by waste and consumerism that many Americans are essentially in a state of denial about the **102 tons** of garbage that they produce over the course of a lifetime. Addiction recovery programs also put an emphasis on personal responsibility, and throughout *Garbology*, Humes too emphasizes the ability of individuals to change the way that they and their communities think about trash—particularly at the end of the book, when Humes encourages readers to get involved and send him their own sustainability suggestions. Ultimately, addiction often causes people to act against their own best interests, and this is why it is a useful metaphor for Humes, who sees the U.S.'s current waste management practices as short-sighted and self-destructive.

QUOTES

Note: all page numbers for the quotes below refer to the Avery edition of *Garbology* published in 2013.

Introduction Quotes

On May 24, 2010, rescue workers donned impermeable hazardous materials suits, then burrowed into the creaking, dangerous confines of a ruined South Side Chicago home, searching for the elderly couple trapped inside.

Related Characters: The Gastons

Related Themes:

Related Symbols:

Page Number: 1

Explanation and Analysis

This quote appears at the very beginning of the book, and it describes an event that took place just a couple years before the book was published. While the quote makes it sound like the rescue team was stepping into a disaster zone (and perhaps in a way, they were), in fact, they were actually diving into the house of a couple of hoarders named the Gastons. This subversion of expectations is meant to provide a shocking introduction to the current garbage crisis in the U.S. and to give a visceral example of some of its consequences.

But while hoarders might seem to be a major force driving the garbage crisis, author Edward Humes argues that hoarders are simply the most visible sign of a problem that virtually every American bears some responsibility for. He introduces the statistic that the average American generates 102 tons of waste over the course of a lifetime, suggesting that in a way, everyone in the U.S. is a hoarder—most just have all their waste hidden from them. While most people are not literally trapped in their homes as the Gastons were, this image dramatically illustrates how the garbage crisis has grown to the point where it threatens to engulf other aspects of American life.

What no one considered back then (and few acknowledge now) is waste's oddest, most powerful quality: We're addicted to it.

It turns out our contemporary economy, not to mention the current incarnation of the American Dream, is inextricably linked to an endless, accelerating accumulation of trash.

Related Themes:

Related Symbols:

Page Number: 9

Explanation and Analysis

This quote comes from the middle of the introduction, where author Edward Humes is describing his goals for the book. Here, he lays out a metaphor that he returns to throughout the book: that the relationship the U.S. has with producing waste is like an addiction. Addiction is relevant because it calls to mind a self-destructive cycle that can't be broken.

It might logically seem as if waste has no benefit for the U.S. and that people would naturally want to take measures to reduce it. By invoking addiction, however, Humes helps to illustrate why solving the garbage crisis isn't so simple. Addiction frequently involves behavior that seems irrational, even self-destructive. The addiction metaphor suggests that on some level, many Americans know that waste is destructive and unsustainable, yet they remain trapped in a cycle that prevents them from breaking the habit. Cutting down consumption in the United States, then, will be as difficult as kicking an addiction.

Chapter 1 Quotes

One hundred thirty million tons: Such a number is hard to grasp. Here's one way to picture it: If Puente Hills were an elephant burial ground, its tonnage would represent about 15 million deceased pachyderms—equivalent to every living elephant on earth, times twenty. If it were an automobile burial ground, it could hold every car produced in America for the past fifteen years.

It is, quite literally, a mountain of garbage.

Related Themes:

Related Symbols:

Page Number: 20

Explanation and Analysis

This quote describes the enormous size of Puente Hills, a massive landfill outside of Los Angeles that at the time of *Garbology*'s publication (2012) was one of the largest landfills in the world. Puente Hills is the subject of the first chapter of the book, in part because it helps demonstrate what happens at landfills—which are often hidden away where most people never see them. Author Edward Humes believes that even though Americans generate an average

of 102 tons of trash over the course of a lifetime, most of them don't actually see what this trash looks like. Through a combination of factors—some intentional, others accidental—trash in the United States has become hard to track, even for people who intentionally try to do so. This is a problem for Humes because he believes that one of the best ways to get people to change their behavior is to show them the results of their actions, and most people don't see any consequences for their wastefulness, at least not in the short term. While Puente Hills represents the size of the growing garbage crisis in the U.S., it also presents a learning opportunity that can help educate people about what happens to all their waste that seems to magically disappear.

"There is no other place like it, and no other job like it, either," Big Mike says, gazing fondly at his dusty, noisy workplace. This observation is accompanied by a sigh of satisfaction tinged with regret, because soon, Big Mike knows, it will end. Soon the mountain will be finished, though not gone, of course—a landfill is never gone. It's the question of what's next that has not yet been resolved, that L.A. and the rest of the country are trying to puzzle out, and that will have lasting consequences no matter how it's answered: Is it time to dump the dump as the centerpiece of waste? Or time to hedge our bets once again and find even bigger dumps to take their place?

Related Characters: Mike Speiser (Big Mike) (speaker)

Related Themes:

Related Symbols:

Page Number: 33

Explanation and Analysis

This section describes some of the things that author Edward Humes learned from speaking to Mike Speiser ("Big Mike"), an employee at the massive Puente Hills landfill outside Los Angeles. Though Humes ultimately reaches the conclusion that landfills need to be replaced by a better solution, he admires the work that Big Mike does and finds it fascinating. In a country that produces so much waste, people like Big Mike are essential for trying to keep this waste under control. While Humes perhaps wishes that it wasn't necessary to have landfills in the first place, he respects the way that Big Mike looks directly at all the waste created by society instead of remaining ignorant about it like many other people do. By introducing the audience to Big Mike, Humes hopes to educate people about waste, with the ultimate hope that greater knowledge will lead people to change the way they think and act about waste.

Chapter 2 Quotes

The job of cleaning up New York then fell to Colonel George E. Waring, a Civil War veteran who, before his military service, had worked as the city engineer responsible for reclaiming the swampland that would become New York's Central Park. Waring had supervised the design of a drainage system that created the park's famously scenic lakes and ponds while leaving the rest of it dry. He had gone on to engineer an affordable and efficient dual sewer and drainage system for Memphis that kept storm runoff and septic waste separate. This protected the city water supply from contamination, ending almost overnight the cholera and other waterborne epidemics that had beset "The River City" for decades. Reforming New York's sanitation department seemed a natural fit for this leading sanitation engineer of the day, who harrumphed into office asserting that he wished to be called "Colonel," not "Commissioner," throughout his tenure. His workers were required to salute.

Related Characters: George E. Waring

Related Themes:

Page Number: 39

Explanation and Analysis

This passage from Chapter 2 describes a turning point in the history of garbage. While there have been sanitation issues in urban areas since the dawn of cities, notably during the Black Death when poor sanitation helped spread the plague, these sanitation problems reached unprecedented levels in New York City around the turn of the twentieth century. Poor sanitation led to disease, and the problem became too large to ignore. At first glance, George E. Waring may have seemed like an unusual choice to reform New York's sanitation, particularly since he had some unusual personality quirks, like his insistence on having his employees call him "Colonel." Nevertheless, Waring's background as an engineer and his affinity for military discipline gave him the experience he needed to transform not just New York's sanitation, but sanitation around the world, as other city officials adapted their own programs from his model. Waring proved that sometimes finding solutions to waste problems involves thinking unconventionally, but at the same time, his prior experience

shows that sometimes new solutions are built on a foundation of old ideas.

It took seven years of failed attempts to finally pass the ordinances to ban incinerators countywide in 1957. The smog had grown so bad by then that it became nearly impossible to dry clothes successfully on outdoor laundry lines without them absorbing a rain of black soot. Complaints about the dirty byproducts of backyard burning finally matched the defenders, and politicians felt sufficiently safe to act: no more burn barrels, no more happy-face incinerators.

Related Themes:

Page Number: 51

Explanation and Analysis

This quote describes another pivotal moment in the history of waste management, when places like Los Angeles began to ban home incineration, a practice that had previously been encouraged. While on the one hand, the home incineration ban had an immediate positive effect on the local environment, preventing soot rain and reducing the conditions that lead to acid rain, ultimately this ban created another problem: all that unburned trash had to go somewhere. And so, the unintended side effect of the home incineration ban was that it opened the door to massive landfills like Puente Hills being formed. The whole episode helps to drive home the point that, while public policy can have a real and immediate impact on garbage, sometimes even well-intentioned policies can have unexpected consequences. It also helps to emphasize the idea that shifting the disposal method for waste won't make much difference if the U.S. doesn't grapple with the deeper issue: a culture of wastefulness that produces too much junk to dispose of by any method.

Chapter 3 Quotes

His life's work, like that of the marketing and design industries he helped create and lead, was dedicated to preventing that from happening, to erase thrift as a quintessential American virtue, and replace it with conspicuous consumption powered by a kind of magical thinking, in which the well would never go dry, the bubble would never burst, oil and all forms of energy would grow cheaper and more plentiful with time, and the landfill would never fill up.

Related Characters: J. Gordon Lippincott

Related Themes:

Page Number: 60

Explanation and Analysis

This quote describes the life of J. Gordon Lippincott, an advertising consultant active in the middle of the 20th century who is considered one of the key figures in helping to sell the U.S. on the idea of consumerism, which thrived after World War II and continues to be a part of popular culture. As someone who worked in advertising, Lippincott strove to sell as many products as possible, and new innovations like the television and credit cards helped fuel this mania for buying new things. For Lippincott, this wasn't just a job but a philosophy—albeit one that involved "a kind of magical thinking"—and ultimately, Lippincott promoted not just products but a lifestyle. This rise of consumerism coincided with a rise in the production of plastic products, which could last in landfills for years without breaking down, laying the groundwork for the modern garbage crisis.

This rise of consumerism and the new American Dream launched during television's golden age was accompanied by another trash-boosting trend—the plasticization of America.

Related Characters: J. Gordon Lippincott , Vance Packard

Related Themes:

Page Number: 65

Explanation and Analysis

This section describes how the rise of consumerism in the United States coincided with a rise in the manufacture of plastics. While plastics were originally touted as a synthetic miracle that could save the environment, it turned out that in fact the exact opposite was true. The production of plastics itself can be environmentally destructive, but even worse is the afterlife of plastic. Because plastic does not easily decompose, it lasts for a long time in landfills, or worse, when it makes its way into the ocean. This is ironic because plastic is often used specifically for things that are not intended to be used very long, like the packaging on products. Many people, following the consumerist ideas popularized by the advertiser J. Gordon Lippincott, appreciate the convenience of plastic. However, this "plasticization" has also had critics from the beginning, notably from bestselling writer Vance Packard and a famous

scene from the 1967 movie *The Graduate*. Ultimately, the sheer volume and durability of plastic has made it a major contributor to the modern garbage crisis.

Chapter 4 Quotes

"Someday we might pay customers for their trash, rather than the other way around," Steiner allows, reflecting on an everybody-wins future in which trash companies pay a bit for garbage as raw material, then make a fortune turning it into the building blocks of the consumer economy. "We're not there yet, but it could happen. A few years ago, you'd never hear me say that."

Related Characters: David Steiner (speaker)

Related Themes:

Page Number: 76

Explanation and Analysis

This passage, which quotes Waste Management CEO David Steiner, speculates on a future where garbage can be used as a raw material and where it becomes so valuable that waste companies pay individuals to take it instead of the reverse. On the one hand, this idea is not so different from some of the ideas that author Edward Humes himself explores, particularly waste-to-energy plants, which turn seeming junk into electricity. On the other hand, however, the actions of Steiner and Waste Management make it clear that the giant company is more interested in evolution than revolution when it comes to garbage. While Steiner's utopian future is a nice thought, without action to back it up, it ultimately risks becoming just a comforting idea that helps people continue to justify their consumerist lifestyles. Still, even if Humes does not necessarily agree with Steiner's assessment of the garbage crisis, he believes there's value in presenting multiple perspectives to give the fullest possible picture of modern garbage.

Chapter 5 Quotes

But finding these big pieces of ocean trash was not the main source of Crowley's mounting despair, though she has known these waters for nearly forty years and sailed here back when they were truly blank and pristine and breathtaking. She knows this sort of trash is a huge problem, entangling and killing more than one hundred thousand marine mammals and an even larger number of seabirds—no one knows for sure how many. But what really alarmed her this day wasn't the trash she could see. It was what she couldn't see that troubled her, after the bottles, cups and other bobbing trash had been hauled out, and the mirror of water and foam appeared deep blue and clear, flashing by beneath sun and pale sky as she stared down from the railing.

Related Characters: Mary Crowley

Related Themes:

Related Symbols:

Page Number: 98

Explanation and Analysis

This quote describes Mary Crowley, a longtime sailor who became involved with cleaning up the oceans after witnessing some of the worst effects of pollution firsthand. While this passage hints at some of the more dramatic examples of visible trash in the ocean, like a gyre of trash called the Pacific Garbage Patch, ultimately it conveys the idea that the vast ocean is able to hide a lot of humanity's waste. But just because this waste is hidden doesn't mean it lacks consequences, and in fact, the hidden plastic of the ocean has had a dramatic effect on the environment, particularly marine wildlife. This passage relates to the 102 tons of trash that every American produces over the course of a lifetime. While this trash remains hidden to most people, Mary Crowley has seen it firsthand through her sailing, and this motivates her to dedicate herself to change. The implication is that if more people could see what Crowley saw, more people would be pressing for reform.

Chapter 6 Quotes

She tends to see the state of the sea as the ultimate in societal heedlessness—an unintended and untended lab experiment run wild, in which the world finds out just what happens when we dump fifty years' worth of plastic into the ocean. Now, Goldstein says, it's time to assess the damage and figure out where to go from here.

Related Characters: Mary Crowley, Miriam Goldstein

Related Themes:

Page Number: 116

Explanation and Analysis

This passage describes Mariam Goldstein, a woman who was younger than Mary Crowley and more involved with the world of traditional scientific research than Crowley but who nevertheless was motivated by a similar desire for change. Because Goldstein was a scientist, this passage reflects her methodical approach to trying to understand and solve the problem of plastic in the ocean. In many ways, her approach mirrors the approach of Humes, who also believes in taking time to "assess the damage" and "figure out where to go from here"—this is in fact the structure of *Garbology* itself, with Parts 1 and 2 of the book focusing on damage assessment and Part 3 focusing on solutions. Though Humes believes people should consider unconventional solutions to the garbage crisis, this passage with Goldstein emphasizes that traditional science will also play an important role in considering the future of trash. Indeed, as a later chapter shows, the entire concept of "garbology" is adapted from the more traditional field of archaeology.

> Plastic has gone so fast from zero to omnipresent that it's slipped beneath conscious perception.

Related Themes:

Related Symbols:

Page Number: 123

Explanation and Analysis

This quote succinctly explains how and why plastic—one of the most visible symbols of consumerism—became such a major force in the current garbage crisis. On the one hand, this brief quote is very ominous. It paints the image of plastic as a silent killer, able to take over the environment so quickly and stealthily that most people don't even register the change. The purpose of portraying plastic this way is to emphasize how serious the issue is and why finding a solution for plastic pollution is an urgent matter for everyone. At the same time, however, it is possible to take some hope from the quick rise of plastic. After all, if plastic is such a relatively recent invention and if its use spread so quickly, perhaps there is also hope that plastic could be replaced or phased out just as quickly.

This is yet another quote that ties back to the 102 tons of waste that every American produces over the course of a lifetime. It shows yet again the problem with ignoring what happens to waste—complacency can allow waste to grow into a massive problem with barely anyone realizing, as happened with plastic.

Chapter 7 Quotes

> At fifty years old, Pritchard was a natural for Trash Track. He'd been working to green himself for years, knocking his personal trash footprint way below the 102-ton legacy. He pegs his trash output at a single paper grocery bagful a month, recyclables included, though he qualifies this achievement by saying he's single and travels often for work, which cuts down his trips to the home trash can and recycling bin.

Related Characters: Tim Pritchard

Related Themes:

Related Symbols:

Page Number: 133

Explanation and Analysis

This passage introduces Tim Pritchard, a relatively average resident of Seattle who began thinking more seriously about garbage after getting involved with the Trash Track program from MIT as a volunteer. While Pritchard didn't have a background as a scientist, he did have several years of experience living in Seattle, something that no one on the MIT team had. This highlights both how people often have abilities they don't realize they have, as well as how, despite being a national problem, waste is an issue that may require different solutions on the local level. Like many of the other people profiled in the book, Pritchard was a bright and dedicated worker but far from superhuman. He showed how it is possible for relatively ordinary people without previous experience to get involved in the search for a solution to the garbage crisis. Additionally, the very existence of the Trash Track program, which involved attaching GPS trackers to individual pieces of garbage to see where they went, helps to once again emphasize how so much of the 102 tons of trash every American generates in a lifetime is hidden.

Recycling in particular has long served as a balm and a penance—a way of making it okay to waste, the assumption being that if something is recycled, then the energy and materials are not being lost, and our disposable economy of abundance doesn't really seem so wasteful after all. But the meandering, inefficient and sometimes purposeless paths for our garbage revealed by Trash Track puts the lie to those old assumptions.

Related Themes:   

Page Number: 139

Explanation and Analysis

This passage describes one of the more surprising and perhaps counterintuitive findings of MIT's Trash Track program. While elsewhere in the book, Humes affirms that the benefits of recycling are real, particularly when implemented as part of a broader waste strategy, this passage shows that when it comes to real-world waste management, the issue can actually get a lot more complicated. The big issue with recycling—and with waste disposal as a whole—is that transporting such large quantities of material can have enormous costs both environmental (in terms of fossil fuels burned) and monetary. On top of that, recycling can also give people a false sense of security, encouraging them to consume more than they might have otherwise. As a result, it prevents people from engaging with the deeper problem: that ultimately solving the garbage crisis isn't going to be about improving recycling but about cutting down on consumption in the first place.

Chapter 8 Quotes

He is the world's first garbologist, and his work uncovered just how poor an understanding we have of our own waste.

Related Characters: Bill Rathje

Related Themes:   

Page Number: 144

Explanation and Analysis

This quote describes Bill Rathje, who arguably invented the whole field of "garbology," giving the book *Garbology* its title. While Rathje had a sense of humor about his work, he believed that garbage was one of the central issues in the United States at the time and that it deserved serious scholarly attention. In order to bring rigor to his study of trash, Rathje looked to other more well-established academic disciplines and found that archaeology was a natural choice as a framework for studying garbage. Still, while parts of Rathje's garbology were rooted in tradition, much of his work was pioneering and involved studying trash with a scope and intensity that few people had ever attempted before. Rathje's work resulted in a wide range of discoveries about people's consumption habits, using hard evidence from the trash record to challenge conventional wisdom about what people throw away.

Garbology makes it possible for a student to go beyond thinking about saving the world, and actually doing it. It's within their power to make a difference.

Related Characters: Bill Rathje , Sheli Smith

Related Themes:   

Related Symbols: 

Page Number: 166

Explanation and Analysis

This quote describes the effects of an in-school program targeted at teaching students about what happens to garbage. By the time the program was rolled out, Bill Rathje had largely retired from garbology, but one of his protégés, Sheli Smith, went on to continue and expand his work. This passage shows how the issue of garbage isn't limited to any single generation and suggests that, just as Smith continued the work Rathje started, perhaps eventually students will continue the work after Smith.

As he does elsewhere in the book, Humes emphasizes the power of individuals to make a difference. In the case of the students, many of them respond to their new lessons about garbage by directly taking action in their schools in an attempt to cut down on waste. Garbology can help Americans picture and reckon with the 102 tons of trash that they produce in a lifetime, ultimately opening up a path to finding solutions.

Chapter 9 Quotes

The artist-in-residence program at the San Francisco dump—insiders use the acronym AIR—started back in 1990 as a Southside San Francisco oddity planted a few miles from the airport near the old Cow Palace arena. It has evolved into an unlikely San Francisco icon, frequently copied but outlasting all imitators.

Related Characters: Niki Ulehla, Deborah Munk

Related Themes:

Page Number: 171

Explanation and Analysis

This quote describes an unusual program at a San Francisco dump, which held artists' residencies for artists in a variety of mediums (like Niki Ulehla) who incorporated trash from the dump into their work. The program arose as a side effect of new laws in San Francisco that attempted to cut down on how much waste went to landfills. The success of such a program might seem like a fluke or a novelty, but author Edward Humes looks deeper into the issue and finds that there's more to it. Managers of the program like Deborah Munk have observed that people seem to be genuinely fascinated by learning more about what happens to their trash, and the artist-in-residence program provides a convenient way for them to explore this interest. While Humes doesn't believe that the solution to the garbage crisis is simply to turn trash into art, he does believe that seeming novelties like the artist-in-residence program can play an important role in forcing people to challenge their existing assumptions and perhaps ultimately motivating them to seek change.

Chapter 10 Quotes

Prior to that moment, he had not thought of those handy-dandy filmy white grocery bags as any sort of problem. They were so thin, so light, he hadn't really given them a thought. But their footprint seemed magnified now by their dramatic presence in the landfill.

Related Characters: Andy Keller

Related Themes:

Related Symbols:

Page Number: 188

Explanation and Analysis

This passage describes the moment when inventor Andy Keller first got the inspiration for his reusable grocery bag, the ChicoBag. Like many Americans, Keller didn't know much about what happened to his garbage after it went into his trash can, but a chance trip to his local dump ended up being an eye-opening experience. In particular, Keller was struck by all the plastic bags, which Humes describes elsewhere as floating over landfills as if they were seagulls.

In many ways, Keller's story follows a familiar pattern to other people profiled in the book: after encountering the state of the garbage crisis firsthand, he was motivated to spend his life seeking to change things. Keller's idea—the ChicoBag—went on to be a huge success. While on its own, the ChicoBag didn't necessarily succeed in defeating the multi-billion-dollar plastic bag industry, it was part of a larger social movement that involved a lot of people realizing how seemingly "cheap" and convenient plastic bags actually had long-term consequences that made them anything but cheap.

TerraCycle, a New Jersey company that has become a leader in "upcycling," faced a similar, potentially fatal attack from a larger, richer, established rival just as it was getting traction in the marketplace. Its experience would provide a model for Keller as he struggled to survive what he now calls "The Plastic Bag Wars."

Related Characters: Andy Keller, Deborah Munk, Tom Szaky and Jon Beyer

Related Themes:

Page Number: 204

Explanation and Analysis

This quote describes the founding of TerraCycle, a company started by Tom Szaky and Jon Beyer that used worms to help convert old food waste into new fertilizer. In many ways the product resembled Andy Keller's ChicoBag, which also found a profitable way to address a common environmental problem. While both the ChicoBag and TerraCycle were successful at growing quickly and making money, their success attracted negative attention from larger companies that suddenly viewed them as competitors. In the case of TerraCycle, the company behind Miracle-Gro attempted to use lawsuits to get TerraCycle shut down and eliminate any possibility of competition.

On the one hand, the cases of TerraCycle and ChicoBag

represent the difficulties of trying to change American culture. Big polluter companies that make products like plastic bags and Miracle-Gro have the money and legal teams to potentially stop competitors before they even have a chance to get started. Nevertheless, author Edward Humes finds hope in TerraCycle and ChicoBag since, at the end of the day, these companies managed to walk away from their lawsuits with moderately positive outcomes that arguably brought them more publicity. Humes continues to believe that individuals have great power to change the course of the garbage crisis, and this passage provides evidence of that by showing how small companies were able to compete with major polluters.

Chapter 11 Quotes

On the garbage front, this city is so far ahead of its American counterparts that it's like comparing laser surgery to leech craft. This city recycles trash at twice the U.S. average, its residents create less than half the household waste per capita, and the community philosophy holds that dealing with and solving the problem of trash must be a local concern, even a neighborhood concern. When it comes to waste, NIMBY (Not in My Backyard) is not a factor, as shipping trash off to some distant landfill—making it disappear for others to manage—is considered wasteful, costly and immoral. Not that such out-of-sight, out-of-mind garbage treatment is much of a consideration here: only 3 to 4 percent of this city's waste ends up in landfills, compared to the U.S. average of 69 percent.

This is not some Shangri-la of past or future. It is the Copenhagen, Denmark, of today.

Related Themes:

Page Number: 226

Explanation and Analysis

While much of *Garbology* focuses on the trash situation in the United States, this passage looks abroad to Denmark to see how other countries deal with garbage. In this case, Denmark has shown surprising success in dealing with trash, in part because it has a very different attitude toward trash compared to the U.S., dealing with the issue openly instead of falling back on "out of sight, out of mind." What really separates trash in the U.S. from trash in Denmark isn't any specific policy but the overall culture around trash in each country, out of which the different policies arise.

The point of this comparison isn't necessarily to suggest that the U.S. should strive to imitate Denmark (though author Edward Humes does find many parts of Denmark's trash culture admirable). Because of its different size and geography, the solutions to trash in the U.S. might take a different form from the solutions in Denmark. Ultimately, what's most important about the comparison is that Denmark proves that the U.S. way of dealing with trash isn't inevitable. Other countries' potential to deal with garbage in a more sustainable way means that there is still hope for the U.S. to change its own culture around waste.

For all his advocacy for waste-to-energy, Nickolas Themelis believes that the most intelligent, most-likely-to-succeed, long-term solution to waste is far simpler than any giant trash-burning generator, and far less costly, yet so much more difficult to achieve: a changed culture.

Related Characters: Nickolas Themelis

Related Themes:

Related Symbols:

Page Number: 236

Explanation and Analysis

This passage develops the theme of how one of the driving forces behind wastefulness in the U.S. is its culture, specifically consumerism. The quote also brings up waste-to-energy plants, which author Edward Humes believes may be an important part of waste management policy in the future. One potential benefit of waste-to-energy plants is that even without a cultural shift, they offer the possibility to do some good, particularly if they are implemented at the proper scale.

Nevertheless, even waste-to-energy advocates like Nickolas Themelis recognize the possible dangers of wider acceptance. Recycling too was once heralded as a solution to the garbage crisis, but despite its real benefits, in some ways it only worsened the problem by making people complacent. This is why people like Themelis and Humes always emphasize that the most lasting solution to the garbage crisis must be a change in culture, even as they acknowledge the enormous difficulties in getting to that goal.

Chapter 12 Quotes

That's when Bea Johnson finally got it: There's power in putting things down instead of putting them in your shopping cart. There's power in saying no—the power to change a family's life and fortune. Maybe a community's. Maybe a whole country's.

Related Characters: Bea Johnson

Related Themes:

Related Symbols:

Page Number: 241

Explanation and Analysis

This passage describes the moment when Bea Johnson finally had her own personal revelation about consumerism and how her actions were contributing to the average 102 tons of garbage that every American produces in a lifetime. After focusing on individuals who accomplished change on a large scale in the previous chapters, for the last chapter of the book, author Edward Humes zooms in to examine the issue on a more personal level. Humes states throughout the book that one of his goals is to empower people to take their own action for sustainability, and Bea Johnson provides the perfect example of that. While Johnson ultimately does end up turning her sustainable lifestyle from a personal choice into a small business, her life provides a framework that can inspire normal people to look at wasteful choices that they and their family make. Johnson provides evidence that in spite of all the economic and political obstacles activists face, there is always something that can be done on the local level.

Johnson and her zero-waste crusade are a whole different animal. She has identified a problem not on a campus or a beach but inside everyone's home and lifestyle. And her family has responded by transforming itself in a dramatic way, becoming happier and more prosperous by rejecting the consumer economy and lifestyle most Americans live and breathe. Is there any wonder why this angers so many people? Agreeing with the Johnsons' views means you either have to accept living a wasteful life, or change.

Related Characters: Bea Johnson, Andy Keller, Tom Szaky and Jon Beyer

Related Themes:

Related Symbols:

Page Number: 253

Explanation and Analysis

This passage describes some of the backlash that Bea Johnson received for her sustainability business, particularly after a photoshoot of her home was published in a major magazine. Compared to other sustainability entrepreneurs like Andy Keller, Tom Szaky, and Jon Beyer, the reaction to Bea Johnson's work involved a surprising amount of negativity. On the one hand, some of the criticism of Johnson's ideas may have been legitimate, and was enabled by the fact that her work had begun to reach such a wide audience. Still, author Edward Humes argues that this alone doesn't explain the negativity and that the real problem was something deeper. He believes that Johnson's philosophies were particularly threatening to many people because they provided a more direct challenge to consumerism than ChicoBag or TerraCycle did. Johnson was asking for people to change their whole lifestyle. She emphasized sacrifice and personal responsibility more than her peers, and the result was that her message was harder for many people to accept. Humes ends the book with Johnson because he believes that solving the garbage crisis might mean facing unpleasant truths, as Johnson did, but that it is necessary to face them.

Epilogue Quotes

When this book was conceived, I intended to write about our 64-ton lifetime trash legacy, not the 102 tons it turns out to be. This original, smaller calculation was based on the widely accepted and official data point produced by the U.S. Environmental Protection Agency, which asserts that the average American produced 4.5 pounds of trash a day. When I discovered midway through this project that these numbers were wrong, that Americans were actually churning out an average of 7.1 pounds a day and sending twice as much trash to the landfill as we were being led to believe, it did more than change the central metaphor of a book about garbage.

It meant our trash problem—our trash addiction—already the biggest on the planet, is way, way worse than we've been told.

Related Themes:

Related Symbols:

Page Number: 256

Explanation and Analysis

At the beginning of the epilogue, author Edward Humes addresses the audience directly, describing how he arrived at the figure of 102 tons, the amount of waste an American produces over the course of a lifetime and perhaps the most important recurring symbol throughout *Garbology*. On the one hand, Humes acknowledges the limits of his approach, showing how, though he presents the very specific number of 102, in actuality there are a lot of unknowns and different ways to calculate that could lead to a different number. Perhaps the most shocking part of the passage, though, is that Humes, who already believed that waste was a major problem in the U.S., actually learned through his research that the problem was even larger than he first estimated. While the previous few chapters touched on hopeful possible solutions to the U.S. garbage crisis, Humes ends the book with a reminder of the sheer scale of the U.S.'s waste addiction and how consumerism and its waste products remain a grave threat to the future of the environment.

> Waste-cutting is the secret to sustainability, security and prosperity. That 102-ton legacy doesn't have to be the end of the story. It's in everyone's power to make it the starting point instead.

Related Themes:

Related Symbols:

Page Number: 262

Explanation and Analysis

This quote comes from the end of the epilogue and includes a call to action. In just a few sentences, author Edward Humes reiterates the major points of his book in order to ensure that there is no confusion or ambiguity over how he feels about garbage and what he feels must be done. For Humes, "waste-cutting" is at the center of all his recommendations. While utopian visions of sustainability are nice, the only way to bring about true sustainability, in Humes's view, is to change the culture of consumerism that leads people to create so much waste in the first place. Though such a major cultural shift will be difficult, Humes emphasizes that everyone has the power to make the current waste crisis a "starting point" rather than the end. Humes's last lines remind the audience of the urgency of solving the garbage crisis while ultimately offering hope that people still have the power to accomplish this change, and that, in fact, some people have already gotten started.

SUMMARY AND ANALYSIS

The color-coded icons under each analysis entry make it easy to track where the themes occur most prominently throughout the work. Each icon corresponds to one of the themes explained in the Themes section of this LitChart.

INTRODUCTION

On May 24, 2010, in a ruined home on the South Side of Chicago, rescue workers in hazmat suits searched for an elderly couple, the Gastons. The Gastons were hoarders and compulsively collected trash, filling their homes with it. Though the Gastons were an extreme example, somewhere between 3 and 6 million Americans at the time were estimated to be compulsive junk hoarders.

Edward Humes begins Garbology *with a shocking image that helps emphasize what the garbage crisis looked like in the U.S. in 2010 (a couple years before the book's 2012 publication). The Gastons represent an extreme example of modern wastefulness, but Humes argues that, in fact, their wastefulness is just more obvious than most people's. This forces people reading the book to consider ways in which their own trash habits might resemble a seemingly extreme example like the Gastons.*

Though hoarders are unusual, the amount of trash they generate isn't unusual. In 2011, Americans made more trash than any other group on the planet, throwing out an average of 7 pounds per person per day, every day of the year. In a lifetime, that added up to **102 tons** of trash.

The most important statistic in the entire book is the 102 tons of trash that every American generates in a lifetime. Though the figure is an estimate (and likely one that would have changed since the book's original 2012 publication), Humes uses a specific number in order to emphasize the concrete nature of all the trash Americans produce. The emphasis on concreteness reminds readers that garbage is a physical object that takes up space, and something needs to be done with it.

The Environmental Protection Agency (EPA) estimates that between 1980 and 2000, the average American started throwing out about one-third more trash every day. This was far above predictions that people made in the earlier part of the 20th century. Some American politicians see trash as a positive sign—though it causes environmental and economic problems, it is ultimately a signal that people are buying goods and that the economy is prospering. By contrast, during the Great Recession in 2008, landfill growth slowed considerably.

Edward Humes expands on the issue of garbage, showing that it doesn't exist in a vacuum but is in fact deeply connected to other parts of American culture, particularly politics and the economy. The fact that some politicians see trash as a positive sign is an early indication of the role politics will play in the book. Many of the best potential solutions for solving the garbage crisis never get a fair chance because they face political opposition, often from corporations with significant lobbying power.

The only difference between hoarders and average Americans is that the waste of hoarders is visible, while most Americans' trash is invisible, hidden away at landfills. In the early 21st century, the annual trash load of the U.S. was equivalent to the combined weight of every U.S. adult, multiplied by 18. While EPA reports were considered the most accurate records of American trash output, more recent independent surveys have shown that historically, the EPA has underestimated the amount of garbage produced and overestimated the percentage of trash that gets recycled.

After introducing the issue of hoarders with the Gastons, Humes expands upon the issue to provide a fuller picture of what trash production looks like for an average American. While the statistics here are important, the real takeaway is less about specific numbers and more about how these statistics provide evidence of a large-scale crisis. Also significant is how new evidence suggests that previous reports were underestimates—it suggests that the garbage crisis is a larger and more urgent problem than most people recognize.

The lifetime **102 tons** of garbage only accounts for trash that Americans throw away in cans by the curb. A more comprehensive figure that includes transportation, energy use, and sewage would raise the lifetime average to 2,700 tons of trash. The numbers are so high and yet so little-known that it's as if trash is an **addiction** in the U.S.

Humes shows the scale of the garbage crisis by slowly building up to its full scope. The image of the Gastons was already shocking, but Humes builds on this image to show that in fact, the real scope of wastefulness in the U.S. is even bigger than that.

In 2006, Zhang Yin became China's first female billionaire by finding a way to export America's garbage to China. China desperately needed scrap paper to recycle (since it had deforested large parts of the country during the Great Leap Forward). Zhang found a way to amass large amounts of scrap paper from American cities, then sell it to China. Trash has become the U.S.'s biggest legacy: the Fresh Kills landfill on Staten Island is one of the few man-made objects visible from space.

The Great Leap Forward was an attempt in the mid-20th century by China's leader, Mao Zedong, to modernize the country by moving it away from its agrarian economy. It remains controversial and caused tens of millions of deaths through famine. Though Garbology *focuses on the U.S.'s trash problem in particular, this section reminds readers that trash is always a global issue.*

What does it mean that every American generates a lifetime of **102 tons** of trash, and what can be done about it? *Garbology* uses a three-part structure to approach the issue in three different ways: problem, investigation, and solution.

Humes sets out a blueprint for the rest of the book. After introducing the huge, global scale of the garbage crisis, he pivots back in the other direction to show how this massive problem might actually be manageable.

Though hoarders may seem like part of the waste problem, they also help point to a solution by showing that trash does have value in a strange way: as a physical sign of wastefulness. But while hoarding is more honest than hidden consumption, even better than both would be to find a way to avoid accumulating so much trash in the first place. A table at the end of the introduction lists shocking statistics about American annual waste, including over 28 billion pounds of food thrown away.

Humes ends the introduction by bringing up an idea that he will return to throughout the book: that it's better to be informed about a crisis than to live in blissful ignorance. Though the shocking statistics may alarm readers, ultimately Humes wants to provide hope that knowledge can lead the way to finding a solution for the garbage crisis.

CHAPTER 1

Mike Speiser, aka Big Mike, was one of the workers who helped create the Puente Hills landfill outside Los Angeles, the biggest active landfill of its kind in the United States, which had 130 million tons of trash and only continued to grow.

In fact, Puente Hills closed in 2013, a possibility that Humes predicts later in the book. Nevertheless, the profile of Puente Hills in this chapter remains relevant today, while also capturing how things were specifically around the year 2012.

Big Mike's most important tool for managing the garbage was the BOMAG, a German-made bulldozer that was 14 feet tall by 30 feet wide, with the ability to push with 100,000 pounds of force. In a single day, Big Mike could use the BOMAG to compact 13,000 tons of garbage into a rectangle the size of a football field, 15 feet deep. The job was not only difficult but dangerous, with eight landfill workers dying on the job in 2010, but Big Mike has been doing the job for 20 years and excels at it.

The description of the BOMAG is meant to inspire awe. At the same time, however, it is worrying because it stands as a testament to how extreme the U.S.'s trash problem is. Throughout this chapter, Humes explores the tension between humanity's ingenious solutions for dealing with trash and the unfortunate problems that required these solutions in the first place. Ultimately, he argues that people have the ability to deal with the trash problem—they're just investing energy into the wrong solutions.

Puente Hills was big, spanning 1365 acres. Half the space was a buffer zone and a wildlife preserve, while the other half (which is as big as Central Park) was all trash, with some trash mountains rising as high as 500 feet tall. The landfill had its own microclimate and needed to be constantly managed to avoid sending noxious smells to nearby residential neighborhoods.

This section destroys the myth that landfills exist on their own, isolated where no one has to deal with them. In fact, they are a big part of their local environments, even affecting the climate, although people who don't live nearby might never realize this.

The history of Puente Hills goes back to the 1950s, when it started off as a normal dump. It didn't become a leading facility in the so-called "garbage crisis" until 1983. The question of "Where are we going to put all the trash?" has come up many times throughout history, and though the United States has historically found new places to dump trash, by 2011, it was running out of space.

Like many problems in the garbage crisis, Puente Hills is the result of not thinking ahead. This type of thinking leads to local problems, like the explosive growth of Puente Hills, but more importantly it carries implications for how the trash crisis could impact the whole planet.

The first "garbage crisis" in history occurred 2,500 years ago in Athens, Greece. Athenians used to just throw trash out their windows, leading to unsanitary streets, but then a new law forbade littering within a mile of city limits. The law was only a temporary success, with filthy urban streets remaining a problem through the 1300s, when dirty streets helped foster the spread of the Black Death. From the Middle Ages to the present, government trash policies have responded to cycles of crises and controversies.

This section shows that problems with garbage aren't new and that, in some ways, things used to be worse. Before people understood what germs are, sanitation was much worse, with filthy streets helping to spread disease. Part of the reason why Humes recounts this history is to show how it is possible for humans to adapt to better trash practices, particularly once they learn more about the problem.

Every morning (except Sundays) in 2011, a line of garbage trucks came to the weighing stations outside Puente Hills, ready to pile more waste onto Garbage Mountain. One of the biggest problems at landfills is how to deal with emissions (which can have unpleasant smells and be bad for the atmosphere). Puente Hills was a leader in pumping garbage through plastic pipes in a way that managed the emissions and helped create fuel for electricity, pioneering techniques that would be used around the world.

This passage describes a typical day at Puente Hills. It is meant to surprise readers by showing how involved the process of dumping waste is, and what's particularly shocking is that it happens every day, while most people remain unaware.

Still, problems with landfills remain. Seagulls sometimes pick up garbage and carry it to residential areas. Puente Hills was "the Disneyland of dumps," but it didn't solve the U.S.'s biggest trash question: is it time to move beyond dumps, or do we just need to find more dumping space again?

This passage sums up many of the chapter's central ideas. While landfills like Puente Hills are impressive—even admirable in some ways, as feats of engineering—ultimately, they are simply a coping mechanism to avoid the real problem. Eventually there won't be enough space for more garbage, even for landfills as efficient as Puente Hills.

CHAPTER 2

Around the year 1900, New York City was so dirty that sailors could smell it from 6 miles out at sea. Other American urban centers fared little better. Puente Hills represented the endpoint of the waste management techniques developed in the early 20th century. It was a success at handling massive volumes of waste but a failure in addressing the fundamental problem of where waste came from.

While this chapter describes the origins of America's garbage crisis, it mixes pessimism with a more optimistic story of how one person (with a lot of help) was able to change the course of garbage in one city—and arguably the whole world—for the better.

The modern landfill was developed by the corrupt Tammany Hall political machine that ran New York City in the late 1800s and early 1900s. At that point, trash was so prevalent across the country that even the White House was full of rats, roaches, and the smell of garbage.

Tammany Hall was a "political machine"—basically an organization that worked behind the scenes to get out votes for specific candidates. Political machines are generally considered undemocratic, since they are often run by means of bribes and corruption. Tammany Hall was notoriously corrupt and controlled politics in New York City for decades.

A new mayor in New York City, eager to reform, wanted to hire someone to take on the garbage problem. The job was offered to Teddy Roosevelt, but he turned it down (believing that the job of police commissioner would be better for his political prospects). Instead, the job went to George E. Waring, a former Civil War colonel who had worked as a city engineer. Waring turned reforming the city's sanitation into a personal crusade and made his workers call him "Colonel" and salute.

This passage about George E. Waring suggests that sometimes making history is about finding the right person for the job. Initially, Waring seems eccentric and perhaps unsuited to holding a serious leadership role (at least in a civilian government). As the rest of the chapter shows, however, Waring's unusual style was exactly what it took to shake up the stagnant, ineffective state of sanitation in New York at the time.


Waring's first move was to hire an "army" of street cleaners (who wore matching white uniforms and marched together). Though some mocked Waring's "White Wings" (as the cleaners were called), their distinctive look soon became iconic around the world. When Waring died, his *New York Times* obituary said that he had done more for the city's sanitation than anyone before him. Waring set the blueprint for sanitation commissioners across the United States.

Waring's decision to approach waste systematically and with an army-like discipline stands in stark contrast to many of the other politicians in the book, who rely more on short-term thinking. Humes uses Waring as an example of what can be accomplished in the fight against trash when someone brings a clear plan and is allowed to see it through, despite initial criticism.

One of Waring's big innovations was finding ways to remove usable materials from garbage, like skimming out tin to be melted and reused. Once the usable materials were removed, the trash was transported to landfills, which were unsanitary and full of rats (unlike the more modern Puente Hills) but still a massive improvement over the dirty streets of before.

Because Waring had so much autonomy to run his program, he was able to help pioneer ideas like recycling that still exist today. Humes shows why strong leadership is important and why leaders should be given leeway to accomplish their goals.

One unusual consequence of Waring's success is that it made people happier with politicians in New York City, allowing Tammany Hall to pick up more seats in the next election cycle. Waring was forced out by the new regime, but many of his successors built on his ideas. His ideas also influenced officials in other cities around the world, particularly Los Angeles, which in the early 20th century had a major smog problem.

This passage mentions a problem that will come up again and again in the book: complacency. Frequently, genuinely positive ideas like recycling will have unexpectedly negative side effects because they help people rationalize more waste.

Residents of Los Angeles had been encouraged to burn their trash at home, but the officials who recommended this disposal method didn't realize how it contributed to pollution, particularly smog. It took until 1957 for home incinerators to be banned in the city. The new law led to even greater demand for space to dump trash. With the dawn of the 1960s and the "age of the plastic bag," things would only get worse.

Humes doesn't necessarily support home incinerators, but he shows how the seemingly positive step of banning them to prevent smog ended up having unexpected negative consequences. In particular, it created a much greater demand for places to dump trash, setting the stage for super-sized landfills like Puente Hills.

CHAPTER 3

In 2011, people often saw objects flying over the Puente Hills landfill that looked like birds but which were in fact plastic bags. Bags are a modern problem that previous public sanitation officials like Waring didn't have to deal with.

Plastic bags are perhaps the most visible sign of the modern garbage problem, and they frequently represent the excesses of consumer culture. Here, their resemblance to birds suggests that trash intrudes on the natural world.

Around that time, Big Mike enjoyed acting as an informal ambassador for Puente Hills, speaking with tour groups and the press. While people who live near the landfill can appreciate its efficiency, most still want it gone. There's also a dark side to the landfill: it was used at least once to cover up a murder. While not as sensational as murder, perhaps the even darker side of the landfill is how it reflects the consequences of consumerism in the United States, where people buy things just to throw them away within a year.

The murder at Puente Hills is really more of a trivia fact than a substantial issue on its own. As a symbol, however, it shows how landfills can be used to bury dark things that people don't want to have to think about. Humes ties this anecdote to consumerism, which thrives by trying to make people forget about the consequences of what they're consuming.

Some have blamed American consumerism on the rise of television (and TV advertising). While few dispute the connection between TV and consumerism, it is ultimately just one factor. One of the prominent pioneers in corporate branding during the mid-twentieth century was J. Gordon Lippincott (whose company created the Campbell's Soup label, the Chrysler logo, the Betty Crocker spoon, and the General Mills "G"). Lippincott noted that the United States was perhaps the first society in the world that threw things away before they were worn out.

Though the issue of consumerism is much larger than any one person, J. Gordon Lippincott represents it better than just about any other American in history, due to his involvement with so many iconic brands. Though Lippincott isn't portrayed as an outright villain, in many ways he is the antagonist for the book, embodying the consumerist attitudes that must be defeated in order for the U.S. to truly solve its trash problem.

Lippincott's goal was to fundamentally change American culture, replacing thrift with conspicuous consumption. Though he was intelligent, many of Lippincott's advertising schemes were based on total lies, trying to make products seem to be the opposite of what they actually were. His work coincided with the introduction of credit cards, which helped get rid of the old idea of saving up to buy things.

While consumerism may seem to be synonymous with the U.S., thrift used to be considered a core American virtue and is in many ways the opposite of consumerism. This passage shows how Lippincott's success was not guaranteed and how it was only possible due to a culture-wide shift in the United States.

Not all agreed with Lippincott's vision of the United States—some rejected the idea of a nation focused on consumption and waste. Vance Packard was one of the main critics of American wastefulness, suggesting that consumption was not a good long-term economic strategy and that conservation and durability were more important. Packard's pessimistic books sold well, but ultimately; it was Lippincott's vision of the U.S. that became more successful.

This passage shows that the mid-20th century was not all about consumerism; in fact, even at the time, there were people like Vance Packard who saw consumerism's problems and criticized it. This point helps make the argument that consumerism isn't inevitable and that one day some new philosophy could take its place.

In addition to being linked to the golden age of TV, American consumerism was also linked to the "plasticization" of the country. Between 1960 and 2000, plastic went from being 0.4 percent of municipal waste by weight to 11 percent. In 2000, Americans consumed 100 billion plastic bags a year, costing retailers $4 billion. The rise of plastic coincided with the rise of disposable products, which often had plastic packaging.

Plastic embodies many of the contradictions of the modern garbage crisis: it's designed to be disposable, but in fact, it lingers in landfills well beyond its intended use. Again, Humes highlights the fact that plastic is a relatively recent invention, implying that it's not inevitable that plastic will continue its dominance in the future.

One of the biggest symbolic changes of the 1960s was when Coca-Cola went from reusable glass bottles to "one-way" glass bottles. Soon after came the plastic two-liter soda bottle, ensuring that soda distribution would never again be as sustainable as it was in 1960, even with more ambitious recycling programs. For soda manufacturers, the switch away from reusable glass lowered costs, pushing hidden costs, like increased pollution, onto taxpayers.

Coca-Cola represents the tendency of large American corporations to prioritize their own interests above all else. While some might argue that it is good for businesses to find ways to cut costs, this passage shows that, often, the costs of production are just being shifted from the business itself onto the consumers (in this case, in the form of pollution, which is expensive to clean up).

While disposable new products helped grow landfills, an equally significant issue was the end of old methods for disposing of waste. Previously, piggeries used to take up a lot of waste, with pigs eating up edible portions of waste.

This passage helps emphasize how different waste disposal looked in the past. It also foreshadows some of the more creative solutions for dealing with waste that people propose later in the book, particularly the company TerraCycle, which uses worms for a similar purpose.

Though pigs were a major garbage-disposal force up through World War II, around that time, people began to believe that garbage-fed pigs were worse for human consumption, with a worse taste and the chance of infecting people. New laws decreed that garbage fed to pigs had to be heated to sanitize it, and this ended up being so expensive that piggeries as a source of garbage disposal had mostly vanished by 1970.

This passage once again highlights how waste management policy intersects with politics. While there may have been issues using garbage-fed pigs for human consumption, ultimately the change in garbage disposal practices came about because the culture changed and people began adhering to new ideas about sanitation.

Two other recent changes—the compacting garbage-truck and the green plastic trash bag—had an unexpected effect on increasing waste, since they made it more difficult for scavengers to identify useful material and remove it before it went to landfills.

This section gives another example of how seemingly innocuous ideas can have unexpected negative consequences. It relates back to the theme that one of the most dangerous parts of the garbage crisis is how so much waste is hidden from most people.

Finally, landfilling became more common because industrial-size incinerators declined in popularity. New clean air laws caused them to close in most places around the country, except New England, where landfill space (and land in general) was at a premium.

As the situation with landfills here shows, solving the garbage crisis will not necessarily take a one-size-fits-all solution, since waste management policy is often determined by local factors like geography.

This growing trash crisis was what ultimately led to the expansion of the Puente Hills landfill outside of Los Angeles in the 1970s. The landfill, which was initially created as just a backup plan, accidentally grew into the largest active landfill in the country in 2011, both an engineering marvel and a cautionary tale that shows the consequences of excess through mountains of trash.

While a towering mountain of trash might seem like a negative thing, Humes doesn't only criticize the Puente Hills landfill. He acknowledges it as an achievement in dealing with trash, even if he believes that its fundamental premise is flawed. Though Puente Hills represents a problem, it is out in the open, unlike most of the 102 tons of trash that every American produces in a lifetime.

CHAPTER 4

David Steiner, CEO of Waste Management, the world's largest trash company in 2011, used to wax poetic when talking about landfills. He thought landfills would always be necessary, although he also considered futures where trash might be so valuable for a consumer economy that trash companies would be paying normal people for garbage instead of the other way around.

As one of the most important figures in the current status quo of trash management, Steiner might seem like a possible antagonist for the book (since Humes opposes the status quo). In fact, however, the section on Steiner and Waste Management is more balanced, mixing achievements with criticisms. This suggests that the author believes solving the garbage crisis will require working with the status quo, or at least understanding it.

In fact, however, despite Steiner's utopian vision of a future where garbage is valuable, his company Waste Management actually thwarted earlier attempts to find sustainable alternatives to landfills when it lobbied aggressively to privatize American trash. The company has a strange history, going from family business to up-and-coming investment to scandal and finally rebirth.

While Humes doesn't offer much outright criticism of Steiner and Waste Management, he highlights the company's actions in a way that suggests it's been hypocritical, its actions failing to match up with Steiner's more utopian speech.

The company that would eventually become Waste Management was founded in 1893 by a Dutch immigrant in Chicago named Harm Huizenga, who later left management duties to his son-in-law Dean Buntrock. Buntrock and H. Wayne Huizenga (Harm's nephew and an entrepreneur who would eventually help build Blockbuster Video and Auto Nation) helped expand the family business by buying other companies, turning it into Waste Management, Inc., a multi-million-dollar company.

Like Puente Hills, Waste Management also grew out of something smaller that was never intended to grow so large. All of these institutions are microcosms of the garbage crisis itself, which has grown in a similarly explosive way. The references to Blockbuster Video and Auto Nation help show how Waste Management is connected to other distinctly American businesses.

Later, in the 1990s, Waste Management was accused of illegal toxic dumping and received heavy fines. There was also a massive insider trading stock scandal where four top company executives (including Buntrock) were accused of fraud, although they settled for $25 million without admitting guilt. This scandal tanked the company's value and allowed a smaller company called USA Waste Services to buy it (though they kept the better-known Waste Management name).

Economics continues to play a deciding role in waste management policy. Ultimately, change comes about at Waste Management not because the company was caught illegally dumping, but because fallout from that scandal and the trading scandal caused profits to go down.

When Steiner became CEO of Waste Management in 2004, the company had already begun to shed its polluter image and attempted to remake itself as a sustainable company, using power plants to convert landfill gas to electricity. Despite this, however, Steiner and the rest of the company were more interested in evolution than revolution. They didn't want to get rid of landfills, just to make them better—for example, by finding a way to convert trash into gasoline.

Steiner's approach is similar to the approach taken at Puente Hills landfill. While Humes seems to admire elements of Steiner's work, ultimately he believes that Steiner is wrong and that garbage actually does *need a revolution, not just a gradual evolution.*

During the 1970s and the 1980s, trash and pollution became a growing political problem. Some topics were divisive: for example, Jimmy Carter started a federally backed program for renewable energy that was promptly shut down by Ronald Reagan. Others, like the Endangered Species Act, received broad bipartisan support. In California in particular, the idea of turning waste into energy fell into the latter category of issues, getting support from across the political spectrum, at least in theory.

Though environmentalism has often been a divisive political issue, Humes makes the argument that it doesn't have to be that way. He points out that some issues like endangered animals are broadly popular and then pivots to suggesting that perhaps solving the garbage crisis could be one of those issues, too.

In the 1980s, the plans to expand the landfill that became the modern Puente Hills initially met fierce resistance, particularly from people who lived nearby. In the end, the expansion of the Puente Hills landfill got approval through the year 1993, and it was expected that by then the landfill part of Puente Hills would be obsolete, as part of California's ambitious waste-to-energy plans.

Humes resists the idea that massive landfills like Puente Hills are inevitable. Here, he shows how Puente Hills itself almost got shut down before it could take on its gargantuan new form. By showing that landfills aren't inevitable, Humes hopes to prove that other possibilities could also be viable.

Despite the ambitions and seemingly good intentions that went into the Puente Hills landfill, it never became the massive waste-to-energy plant that some had envisioned. The smokestacks of the landfill in particular (which were needed for energy conversion) faced backlash at every stage, both for the smoke's environmental impact and for its impact on local residential areas. As a compromise, politicians abandoned the idea of Puente Hills as a waste-to-energy facility and turned it into a place for dumping garbage instead of burning it.

Though later sections of the book will look into the possible benefits of waste-to-energy plants, this section looks at some of the very real downsides. The question, however, is whether the long-term effects of the current Puente Hills landfill might be just as bad if not worse than the proposed waste-to-energy plant.

Opponents of the smokestacks at Puente Hills didn't necessarily oppose waste-to-energy altogether; they just wanted it done in a more remote location. That didn't happen, however, and though residents near Puente Hills scored a minor victory, they soon faced another problem when the heaps of unburned trash in the landfill began to pile up. The convenient location of Puente Hills helped it semi-accidentally become the cheapest place in California to dump trash, and its size grew as a result.

Again, a short-term waste management victory leads to unforeseen long-term consequences. This section emphasizes how important it is to be thoughtful and plan ahead when developing waste management policies, since "temporary" fixes have a habit of growing into long-running institutions.

Efforts to move Puente Hills stalled, largely because it would have been so expensive to ship trash even a short distance further. Many in Los Angeles grappled with a question—"Isn't there something better we can do with, or about, our trash?"—but answers remained elusive.

Humes shows how people with good intentions can be frustrated by a lack of direction. Though his book argues that there are solutions to the garbage crisis, he acknowledges the feelings of hopelessness that so much trash can create.

Big Mike estimated that Puente Hills would stop taking trash in 2013 or shortly after, but the landfill wouldn't go anywhere: it'd just enter its "Terminal Phase." In theory, the landfill would be permanently sealed and converted back into usable land like roads and parks, but examples elsewhere in the U.S. have shown that "closed" landfills often require maintenance more or less indefinitely.

This section relates back to Steiner's utopian promises at the beginning of the chapter. Ultimately, it shows how many of the current status quo promises—that landfills can simply be closed up and turned back into usable land—are mostly empty and based on wishful thinking.

CHAPTER 5

Mary Crowley was a teacher turned sea captain who sailed the North Pacific in a big ship called the *Kaisei* (Japanese for "ocean planet"). Over nearly 40 years of sailing, she was dismayed to see the amount of trash increasing in the Pacific waters, both visible trash on the surface and even more dangerous trash lurking below.

One of the most significant places where the effects of the garbage crisis is felt is in oceans. As a sailor with over 40 years of experience, Crowley is well suited to understand what the ocean is like and how pollution is directly affecting it.

Plastic is a major problem for ocean life. In one study, scientists found that nearly one in ten fish had plastic in its digestive tract (because the plastic was small and resembled plankton, which fish eat). Crowley and her nonprofit, Project Kaisei, have been studying just how bad the plastic problem is for oceans, particularly around the so-called Pacific Garbage Patch, which is one of the most visible signs of ocean pollution.

This section helps emphasize why the "plasticization" that began in the 1960s has such important consequences for today. Like the Puente Hills landfill, the Pacific Garbage Patch is important, not just for its own environmental impact, but because it's one of very few places where the scale of the current garbage crisis is clearly visible.

Crowley's nonprofit was unique in that it focused on finding ways to extract plastic from the ocean, something many experts agree is impossible—that even if the technology existed, it would likely be too expensive or do too much unintended harm to ocean life. But Crowley wasn't someone who gave up easily.

This section shows the potential value of ignoring conventional wisdom. Trying something new can be particularly effective for someone like Crowley, who is not a garbage professional in the traditional sense, but who brings a lot of valuable life experience.

Understanding landfills is only the first step to solving America's trash problem. After all, lots of trash escapes or is dumped illegally, and it must be accounted for too. Often, the end destination for all this trash is the ocean. About half the plastic that makes it to the ocean floats, and this means it travels around the world on ocean currents. Because trash is trapped in these currents, they have become essentially the largest garbage dump in the world.

The state of the oceans helps demonstrate the consequences of the garbage crisis. Water is often associated with cleanliness or purity, which makes it all the more shocking that oceans have effectively become a garbage dump.

In 1997, the ocean researcher and sailor Charles Moore decided to do something against conventional sailing wisdom. Typically, sailors avoid "the doldrums," which are low-wind areas caused by ocean currents that leave sailing vessels stranded. But with fuel engines to compensate for the lack of wind, Moore sailed right into the doldrums.

Moore's dedication to challenging conventional wisdom mirrors Crowley's desire to do the same. Both of them searched for a revolution in the garbage crisis, not simply an evolution, like Steiner in Chapter 4.

Moore wrote about his shocking experience in the doldrums for a natural history journal, describing how the place was so full of plastic debris that he struggled to find a clear spot as far as the eye could see. Moore's article helped bring the plastic garbage patch in the Pacific to the public eye.

Moore's article shows the value of spreading knowledge. It continues the theme that people are more willing to address the garbage crisis when they can directly see the consequences of all the waste they are producing.

In her early 60s in 2011, Crowley continued to devote her time and passion to ocean research. As a longtime sailor and surfer, Crowley was disturbed by the increasing amounts of garbage she saw in the ocean, and so she teamed up with some similarly minded friends to found Project Kaisei.

Crowley is motivated in her activism because her experience sailing has directly shown her the consequences of plastics in the oceans. The implication is that if more people could see the plastic in the oceans directly, they might get involved, too.

Part of Crowley's project involved hiring an engineer to come up with new ways to capture plastic from the ocean. Her expert engineer faced many of the problems that had stalled other experts, particularly when it came to making plastic extraction cost-efficient. At last, however, they came up with a passive, ramp-like contraption that could be suspended in water and capture plastic with minimal cost.

Despite Crowley's opposition to the status quo, she doesn't entirely throw out traditional expertise. The real challenge for her is to use traditional knowledge about engineering and the environment, but in an unconventional way that others may have overlooked or dismissed.

Though tests and pilot programs of Crowley's contraption were successful, it would still need significantly larger-scale support to work, and it didn't do anything to address the fundamental problem of where all the plastic in the ocean was coming from. Crowley hoped that even if her contraption wasn't the solution, it might still help draw attention to the issue of ocean plastic and get more people involved in finding solutions.

Humes ends the chapter by suggesting that Crowley's ideas could have real potential if given more investment, while also suggesting that the solution might not necessarily come from Crowley herself but from someone like her. After all, George Waring's ideas about how to improve sanitation in New York were considered unusual until he was given the resources to prove that it could work.

CHAPTER 6

Miriam Goldstein was one of the scientists working on solving the massive ocean trash patches. Goldstein was much younger than Crowley, and unlike the veteran sailor, Goldstein frequently got seasick in boats. After making her first big sea voyage to the Pacific Garbage Patch, however, she knew she'd found what she wanted to study.

The presence of Goldstein in the book emphasizes how solving the garbage crisis isn't just an issue for veterans like Crowley but how it should energize people near the beginnings of their careers, too. The garbage crisis requires input from all sorts of people who can attack the problem from a variety of angles.

Goldstein and her colleagues were surprised to learn that the Pacific Garbage Patch wasn't just a distinct mass, but instead a wide area with different concentrations of trash, less of an "island" and more of a "chowder." Goldstein wondered how creatures lived in the gyre of the garbage patch.

While the Pacific Garbage Patch is perhaps the most visible sign of the ocean's pollution problems, Goldstein's experience shows that it doesn't exist in quite the form that people might expect.

Because of the vast size of the ocean, some questions about its plastic content remain unanswered or only have educated guesses. Still, the United Nations estimated that over 7 million tons of trash went into the ocean each year, with 5.6 million tons of that being plastic.

The numbers in this section are huge, perhaps too big to even imagine clearly (which is why visual signs like the Pacific Garbage Patch are so important). The main takeaway from these numbers is that plastic makes up a shockingly high proportion of all ocean trash.

One hundred years ago, there was no plastic in the ocean because there was no plastic at all. Plastic went from nothing to omnipresent, even though it was invented long after other modern innovations like color photography, helicopters, and vacuum cleaners. Ironically, though plastic is now a major threat to nature, it was initially championed as a savior of nature, since it meant, for example, that piano keys could be manufactured without killing elephants for ivory.

On the one hand, the suddenness of plastic's appearance and explosive growth is a warning sign. It shows just how easy it is for a major environmental problem to spiral out of control. Still, on the other hand, it is possible to take some hope from plastic's origins. After all, if it was possible that the world existed without plastic for so long, then perhaps it's also possible to imagine a future that goes beyond plastic.

World War II led to a major increase in plastic production, then after the war, manufacturers tried to make use of their excess capacity to make new plastic products. By the 1960s and 1970s, plastic had really grown, surpassing aluminum in raw volume, then steel.

Because Humes believes that greater knowledge can motivate people to change their habits, he believes there is inherent value in exploring the history of plastic's rise.

Though some of the claims about plastic being a "miracle material" are true, these claims neglect to mention plastic's long life cycle and afterlife. Dirty plastic can't be recycled, meaning a lot of it sticks around and ends up in oceans. This led people like Mary Crowley and Miriam Goldstein to ask what could really be done about all the mountains of plastic garbage.

Humes doesn't dismiss the positive aspects of plastic outright, but ultimately, he concludes that the negatives far outweigh the positives. This position reflects his view that long-term consequences are much more important than short-term gains.

CHAPTER 7

One of the big problems with trash is that it is so difficult to track. The supply chain of how products get made is easy to follow, but the "removal chain" is much less trackable. One lab at MIT decided to experiment with "smart trash" by inserting GPS software into normal trash to see where it went.

The very idea of "smart trash" shows how mysterious and impenetrable trash has become in the United States, even for experts with university resources at their disposal.

In 2009, Tim Pritchard was a Seattle native who heard that MIT's Trash Track was seeking volunteers. Pritchard joined and helped show the MIT team around Seattle. Some of the trash tracking was high-tech, using the guts of old cell phones to create custom trackers. These were attached to various pieces of trash using a durable epoxy foam. The researchers tried to hide the tracking devices, in order to keep them from being purposely or accidentally removed.

Like Crowley and Goldstein before him, Pritchard shows what just one motivated individual can do to affect the garbage crisis. As someone with no previous experience, Pritchard shows how truly democratic the process of fighting back against waste can be. Then again, perhaps Pritchard also shows how seemingly ordinary people are actually experts in certain things, particularly related to their own communities, and how this expertise will play a vital role in solving the garbage crisis.

During summer and fall of 2009, the Trash Track team released their trackers into the wild. Weeks later, they checked back on the results and found some surprising things: for example, an old sneaker that traveled 337 miles from Seattle to Oregon. One consistent finding was that electronics and hazardous waste often traveled much further, sometimes being loaded onto ships and taken out of cell reception.

Individually, the details of these pieces of trash are perhaps surprising but not particularly noteworthy. Taken together, however, they tell a story of what a tremendously complicated system American garbage disposal has become and how these complications have helped obscure what's happening on a large scale.

The MIT team hoped getting regular citizens involved would help increase awareness about the impact of trash. In particular, the study helped confirm that while recycling sounds good on paper, because trash gets moved around so much, generating excess waste from transport, this offsets the gains from recycling and makes things more complicated. The real solution will be to cut down on trash in general. Smart trash, however, was just the first step in tracking where all the trash goes.

The MIT project helped provide some hard evidence of what many people already suspected: that solving the trash crisis will involve a culture-wide shift. The program's reliance on volunteers helps emphasize the idea that solving the issue of waste will require communal solutions.

CHAPTER 8

Bill Rathje, arguably the world's first garbologist, used a tool called a bucket augur (typically used for drilling wells) to dig up and inspect old trash. Some of his findings were surprising, like a bowl of guacamole that was 25 years old but was still green underneath the initial layer of brown. The guacamole was a sign that landfills weren't working as advertised—things weren't supposed to be preserved like that.

Like the Gastons at the beginning of the book, the bowl of guacamole that Rathje unearths is not necessarily typical, but it provides a particularly dramatic example that helps people better understand why the current state of affairs is so shocking.

In 1973, Rathje founded the Garbage Project, which aimed to be a systematic analysis of modern waste. Rathje was a natural contrarian and started off trying to use trash as evidence to disprove popular misconceptions. While garage had sometimes been studied by journalists and detectives, the Garbage Project was the first large-scale investigation of its kind, using techniques that resembled archaeology.

While Rathje is perhaps the most openly contrarian of the people profiled for the book, ultimately all of the garbage activists are motivated by some amount of contrarianism. Humes shows how contrarianism doesn't necessarily equate to negativity, and how it is frequently a necessary force to drive positive change.

In its first year, the Garbage Project investigated what happened when a beef shortage drove up the price. Surprisingly, the more expensive beef actually led to more wasted beef in the trash. Rathje figured that shortages (and particularly the publicity around shortages) led people to hoard beef, leaving more of it to go to waste.

One of the benefits of Rathje's approach to trash was that it relied on hard evidence, which allowed it to look objectively at trash and make some surprising observations that run counter to what people might expect.

Another finding of the Garbage Project was that special collection days for hazardous materials often led to *more* improper disposal instead of less. Rathje figured out that many people rounded up old junk to throw out on special days, then accidentally missed the day and decided to throw out the trash anyway.

This passage continues the theme of well-intentioned ideas with real, tangible benefits that nevertheless have surprising negative consequences. The purpose of these sections is not to discourage new ideas, however, but simply to encourage even more experimentation.

Yet another finding from the Garbage Project was that larger trash cans inspired houses to produce more trash. Other findings offered diverse insight on everything from alcohol consumption (highest around paydays) to candy eating (with most Halloween candy being eaten but lots of Valentine's Day chocolate discarded in unopened wrappers).

These findings help provide a foundation for one of the central ideas of the book: that people have a lot of false ideas and delusions about their own trash production. While these specific examples are mostly trivia items, together they paint a picture of a nation that fundamentally misunderstands how its trash works.

The Garbage Project expanded its scope and influence, particularly after being asked by the U.S. Census to help calculate the number of households, particularly two-parent households, in poor communities using data from trash. Though Rathje and his colleagues helped develop potentially useful techniques for the 1990 Census to solve its problems with undercounts, ultimately the Census Bureau decided that it might attract bad PR to be perceived as digging through people's trash.

Rathje's work was met with resistance and setbacks, and arguably there is even some merit to the idea that his methods involved an invasion of privacy. Nevertheless, the main takeaway from this passage is that it would've been possible to take Rathje's methods even further, if he'd only been given the proper support, but that opportunity never materialized.

Still, despite the Census setback, the Garbage Project had other successes. In one notable survey, the project showed that there was a big discrepancy between how much alcohol people reported drinking and what the trash record actually said (although interestingly, alcohol consumption by volume was mostly the same across income groups).

Again, the data collected from the Garbage Project is theoretically free from people's assumptions and biases, and this is what allows it to give such unusual and surprising insights into people's consumption habits.

Taking even more inspiration from archaeology, the Garbage project began digging to excavate landfills. Rathje and his colleagues found that landfills weren't decomposing trash, as many claimed, but in fact just "mummifying" it. Though this seems like a bad thing (and it was), one unexpected benefit was that it meant toxic materials were less likely to make it into the soil.

Though Rathje was a contrarian, he adopted a lot of his methods from the discipline of archaeology. Rathje's research shows how a garbage revolution will involve not only questioning the status quo, but also incorporating the best of older traditions into the process of making new ones.

Based on their findings, the Garbage Project came up with a 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." While nutritionists do value variety in a healthy diet, the Garbage Project showed how the concept of variety had been exploited by big companies to make people buy food they didn't want or need.

This passage connects back to consumerism from earlier. It shows how a person's natural—even healthy—desire for variety can be manipulated by companies that simply want to turn a profit, with disastrous side effects for the environment.

Rathje estimated that if all the U.S. trash could be moved to one landfill, the landfill would be about the size of the Bronx and 120 feet high. This is big but not gargantuan—Rathje's point was to illustrate that space isn't the biggest issue with modern trash. His bigger concern is the trash that doesn't go to landfills and instead ends up in the oceans.

Despite being a contrarian, Rathje took a pragmatic approach and didn't criticize landfills just on principle. He allowed that in theory, landfills could be a viable solution to the garbage crisis, before explaining why, in practice, landfills aren't a good solution.

By 2011, Rathje had retired and gotten into Buddhism, disappointed that little about American consumption had changed in his lifetime. In 2001, he wrote about how he believed the United States had entered its "Decadent" period, the time after the Classical Period of a civilization when the civilization begins running out of resources, with actions to prevent the fall taken too late.

Rathje's retirement and negative predictions seem to suggest that he got discouraged near the end of his career and perhaps frustrated with the limits of what one person could accomplish. Though the word "decadent" is often used today to mean "luxurious," it originally referred to something in a state of decay.

With Rathje retired and his Garbage Project over, no one in academia stepped up at first to fill his position in garbology. Eventually, however, Sheli Smith, one of the first Garbage Project students, helped lead a renaissance in garbology. Smith started to work with her local school to teach children about garbage. The program was successful and soon expanded to other schools, where students seemed eager to learn and confront the waste they saw every day in their schools.

In spite of Rathje's discouragement, however, the presence of new activists like Sheli Smith suggests the possibility of a more hopeful future where others continue Rathje's work. The success of garbology programs at schools suggests that future generations have the potential to be smarter about the trash crisis than previous generations—perhaps in part because they are increasingly motivated by necessity.

CHAPTER 9

In 2011 Niki Ulehla was the artist-in-residence at a San Francisco garbage dump, working on trash to create scenes from Dante's *Inferno*. The artist program at the dump, run by Deborah Munk, started in 1990 as a novelty but quickly became popular and was widely copied. The timing ended up being perfect, since the year before, California had passed a law mandating that local governments divert half of their waste from landfills. This led to increased popularity in the idea of recycling, which the artist-in-residence programs helped promote.

The whole section about the artist-in-residence program at the San Francisco dump shows that, when given the opportunity, people can actually enjoy learning more about garbage. The point is not literally to solve the trash crisis by turning it into art but instead to get people to rethink waste in general by viewing it in an unfamiliar setting.

In 2011, a Bay Area waste company called Recology (which supports the artist-in-residence program) had contracts for recycling resources and other waste services in 50 communities across the West Coast. It was one of the 10 largest employee-owned companies in the country and also one of the country's biggest organic composters (boosted by San Francisco's decision to accept compost at curbside bins).

The story of Recology complicates the story of the artist-in-residence program. While in some ways the company made a positive impact on the city of San Francisco, in other ways, its need to make a profit restricted what it could do to help the garbage crisis.

For Recology, recycling is profitable, and at one point, the company got a court injunction to stop independent recyclers from scavenging bins before Recology could pick them up. Recology's ability to pay for itself was important not only for the company but for the green image of San Francisco itself. In 2010, San Francisco claimed to divert 77 percent of trash from landfills through recycling and composting programs like Recology's. The city planned for zero waste to landfills by 2020.

The dark side of Recology's work was that it could give people a false sense of accomplishment, when in fact the garbage crisis was far from solved. This downside doesn't necessarily mean that companies like Recology don't work; it simply suggests that they need to be part of a larger cultural shift in order to avoid having their positive impact offset by a new negative impact.

Deborah Munk's job, which included directing the San Francisco dump artist-in-residence program, was about changing how people thought about waste. Her previous career was as a high-end clothing buyer, where she saw firsthand the consequences of consumer culture. She got involved with the residence program after she had a chance meeting with a former professor who ran it.

Like Pritchard, Munk's involvement with waste management happened through chance. While the book celebrates their unique resourcefulness, it also suggests that many seemingly average people could achieve similar things if given the opportunity.

As the artist-in-residence program matured, it expanded out to different kinds of artists, including painters, videographers, musicians, and even puppeteers. New artists often fear that they'll never find the materials they need at the dump, but they always seem to find a way. Their work shows that plenty of waste isn't as trashy or useless as it seems.

The idea of finding a use for waste would be a dream come true for waste management people. While turning it into art isn't a good solution at a mass scale, this example shows how a different technique, such as waste-to-energy plants, could find a better use for trash.

CHAPTER 10

Andy Keller used to work in software before he created the ChicoBag. After being forced out of his software job, he started doing yard work on his house and created so much waste that he had nowhere to put it. This led to him visiting a landfill for the first time. Seeing all the plastic bags, he was inspired to sew his own ChicoBag, a reusable grocery bag.

Keller's story mimics many of the other people profiled in the book: he was ignorant about the real scale of waste in the U.S. until he saw it for himself. Seeing a landfill firsthand was so powerful that it inspired him to try to change things.

Though the ChicoBag still had a large carbon footprint from being manufactured abroad, it was an affordable and sustainable alternative to plastic bags, and by 2011, it was making five million dollars annually in revenue. Keller went around to schools, showing just how wasteful plastic bags can be. This led to the creation of "Bag Monster," his super-villain alter ego, which involved using a costume of 500 plastic bags to show the bags' dangers. Soon, more Bag Monster costumes were made for other educators to use.

Keller's creation of the Bag Monster shows how important it is to be able to present information in interesting ways. Though the monster is fictional, it serves a similar educational purpose to the Pacific Garbage Patch, providing a visible sign of a problem that is in many ways invisible to the average observer, despite its large scale.

Around the time that Keller gave a TED Talk, plastic bag lobbyists began to fight back against activists like him. Though many consumers hated plastic when it was first introduced, companies knew that people would get used to the new products eventually. By the early 21st century, about 90 percent of grocery bags were plastic. Part of the reason the plastics industry remained so powerful was that it didn't move offshore and still retained large numbers of American workers.

TED stands for Technology, Entertainment, and Design. The organization hosts popular lectures by people in those fields, which are widely shared online. Though today reusable grocery bags and plastic bag bans are becoming more common in the U.S., Keller was working near the beginning of this movement, and the plastics industry was arguably even more powerful.

While paper bags bring their own problems, they can be recycled indefinitely and are cheaper when recycled, whereas only about 1 percent of plastic bags are recycled. In 2002, Ireland became one of the first countries to act against plastic bags, placing a tax on them and setting a model for future governments. Despite initial resistance, the public and even grocery store chains soon began to appreciate reusable bags.

Humes is quick to acknowledge the lack of perfect solutions for the garbage crisis, showing how paper bags have their own issues, even if they are ultimately a step up from plastic. Though Ireland's politics and culture don't line up exactly with the U.S., there is enough similarity between the two countries to suggest that a similar tax in the U.S. might produce comparable results.

When San Francisco tried a plastic bag tax similar to Ireland's, lobbyists from plastic bag manufacturers got a law passed that prevented plastic bag taxes. San Francisco responded by simply banning single-use plastic bags outright. Despite seeming to be more comprehensive, the San Francisco ban was actually less effective than the Irish tax because it only affected large businesses and still allowed for free paper bags to be given out.

In spite of the previous passage, however, the anti-plastic bag measures in San Francisco were not as successful as in Ireland. Humes argues that the issue is not that San Francisco is fundamentally different from Ireland, but that San Francisco's specific implementation of the measures was less effective, driven in part by political pressure.

Other communities across the U.S. began experimenting with different versions of plastic bag bans, frequently in spite of opposition from plastic lobbyists. Some of these cities cooperated with companies like ChicoBag and others in the "upcycling" space, since they had a common enemy in the plastic industry.

The popularity of plastic bag bans across the U.S. suggests that many people like the idea and that the strongest opposition is coming from the powerful plastic bag industry, which has a lot of money to help spread its views.

TerraCycle was a company founded by two Princeton University freshmen in 2001, Tom Szaky and Jon Beyer. It started out as just an entry in a business contest—they would take food scraps from the dining hall and turn them into fertilizer using worm farms. The duo expanded their worm fertilizer idea, eventually turning a profit after getting picked up by Home Depot and Walmart. By 2006, it was a multimillion-dollar company, and in 2007, the company behind Miracle-Gro sued TerraCycle for copying the company's packaging style.

TerraCycle shows that Keller wasn't an anomaly and that in fact plenty of other enterprising people were looking at the growing garbage crisis around them and trying to find a new, better solution than dumping everything into landfills. While Szaky and Beyer are an exceptionally successful case and come from a privileged college background, they nevertheless demonstrate how big ideas can begin as something small and seemingly insignificant.

Miracle-Gro has long faced criticism from environmentalists for all the toxic herbicides and pesticides it contains. The company took offense at some of TerraCycle's marketing and packaging, which it claimed reflected negatively on their product. TerraCycle responded by creating a website dedicated to fighting back in the case, promoting the image of a David vs. Goliath fight. Though the website raised little money, it became a major PR victory after being picked up by the *Wall Street Journal* and the *New York Times*.

This whole section with Miracle-Gro suggests that major companies can frequently find loopholes in laws that arguably twist the laws' original intent—all for the sake of eliminating up-and-coming competitors. Humes associates Miracle-Gro with a consumerist mindset, since the product gives the appearance of well-kept greenery while actually putting all sorts of toxic chemicals into the earth.

Ultimately, the case was settled with no money changing hands but TerraCycle agreeing to modify its packaging. Though Miracle-Gro made no concessions and both companies had to pay legal fees, TerraCycle benefited from a massive publicity boost while the stock of the Miracle-Gro company took a dive.

The messy ending of the court cases shows how legal disputes rarely end in the sort of slam dunk victories that both sides are hoping for. Nevertheless, they show how courts can provide a way for small companies like TerraCycle to compete on somewhat even terrain with industry giants.

Andy Keller of ChicoBag also got unexpected publicity benefits from lawsuits with bigger companies. Some of the major companies claimed that facts about plastic bag pollution that Keller published on the ChicoBag website were harmful to his business. Though ChicoBag had accurately cited sources for the statistics, they could have been held legally accountable even for repeating others' claims, if the claims were false and caused economic damage.

Keller's experience shows that the litigation TerraCycle faced wasn't an unusual event but is in fact part of a standard playbook used by big companies to try to force smaller competitors out of business. Though Keller is resourceful, this passage suggests that there is an element of luck at play when small companies are able to rebound from being taken to court.

After receiving a cease-and-desist letter from the plastic companies, Keller removed the statements in question from the ChicoBag website to investigate further, but he got sued anyway. Keller investigated his claims again and found that, while there may have been ways to improve some aspects of the claims, they were mostly true and far from misleading. The plastic bag companies dropped out of the lawsuit or settled before the case went to trial. Keller agreed to modify his claims slightly; ultimately, both sides claimed victory.

The outcome of Keller's case, with both sides claiming victory, provides a further parallel with TerraCycle. It highlights the importance that narrative plays in a movement and how the same event can look different when viewed from different perspectives. Ultimately, however, Keller seemed to be the one with facts on his side, and the larger companies were left trying to suppress his ideas rather than refute them.

Plastic bags are often used for only a few hours, then have to potential to last as garbage for centuries. However, despite their seemingly huge impact on oceans, as a total percentage of the waste stream, they make up a relatively small part. Keller saw bags as a symbol for unnecessary waste as a whole. He believed that the cure for trash **addiction** has to start somewhere, and it might as well begin with the most visible sign: the plastic bag.

Keller recognizes the importance of visual symbols to people, and so he focuses on highly visible plastic bags instead of focusing on more abstract issues like pollution. The hope is that, ultimately, focusing on symbols like plastic bags will be the best way to get people to understand the larger issue.

CHAPTER 11

In 2011, there was one city that consistently ranked as one of the greenest and most sustainable in the U.S.: Portland, Oregon. Despite its successes, however, the city still produced huge amounts of trash, with a slightly higher per capita rate than the U.S. average. Portland was looking for old-fashioned solutions to trash, like expanded composting plants as well as more experimental processes, like one called plasma gasification that vaporizes garbage at high temperatures (which was still too expensive for large-scale use).

While this passage praises many of the achievements of Portland, what it is ultimately doing is setting up the rest of the chapter, which deals more with the dangers of complacency. While Portland is far ahead of many other places in the U.S., its status as a pioneer helps obscure the fact that the city is actually behind many cities outside the U.S. when it comes to waste management.

Still, none of the proposed solutions for Portland's trash problem addressed the central issue: how to stop making so much garbage in the first place. One Portland official predicted that the next trash revolution would take place before 2020.

Humes gets at the heart of the problem with Portland's green initiatives: none of them do anything to address the consumerism that leads to so much trash being created in the first place.

Another city with impressive green credentials in 2011 was Copenhagen, Denmark. Unlike Portland and other American cities, however, Copenhagen had made real progress in reducing waste produced: only 3 to 4 percent of waste goes to landfills in Copenhagen, compared to an average of 69 percent across the U.S. The secret to Denmark's success was how it turned trash into renewable energy, burning it to generate power. Unlike the massive waste-to-energy plants proposed outside Los Angeles, Denmark had a network of smaller plants.

The experience of Copenhagen shows how U.S. trash experts have been held back by looking inward rather than also considering solutions from abroad. While waste-to-energy plants previously failed in the U.S. for a variety of reasons, Denmark provides a counterexample to suggest that the failure of waste-to-energy in the U.S. might have had more to do with the implementation than with the idea itself.

Denmark's path to success began in the 1970s, when an oil embargo led to gasoline shortages around the world, prompting many countries to invest in greener alternatives. In addition to the environmental benefits, Denmark's modernization helped it become energy independent and stop relying on foreign oil.

Throughout the 1970s, and particularly in 1973 and 1979, there was an oil crisis in the U.S. and Europe with a limited supply of oil and rising prices. This was generally due to political conflicts in the Middle East. This led some countries to look into other sources of energy.

Denmark's waste-to-energy system used a technology called "mass burn," which burns large quantities of trash but has high smokestacks that help filter out most of the worst toxins created by burning trash, particularly compared to coal plants and landfills. In the U.S. in 2011, waste-to-energy plants remained objects of skepticism and fear, even though many studies suggested they were better for the environment than alternatives.

Humes suggests that it is worthwhile putting up with some known negatives if the resulting positives help outweigh them. Nevertheless, the problem in the U.S. is that politics make it difficult for anything with short-term negative effects to be implemented.

Compared to normal recycling, waste-to-energy has the potential to be significantly cheaper. Though recycling retains some important energy advantages, these are offset by factors like transportation costs. Some have feared that waste-to-energy might encourage people to stop recycling, while others, like waste-to-energy advocate Nickolas Themelis, have argued that the two complement each other, since no recycling process uses 100 percent of the material.

Humes seems to consider waste-to-energy as the most realistic of all the proposed solutions to the landfill problem, which is why it comes near the end of the book (as a culmination of all that came before). Though Humes doesn't always agree with the people he quotes, the inclusion of waste-to-energy advocate Themelis provides further support for the idea that Humes believes waste-to-energy is the best solution.

One of the problems waste-to-energy faced in 2011 was similar to the problems solar energy faced in the U.S.: officials only conceptualized them as massive, utility-scale plants. In fact, the success stories from other parts of the world mostly involved smaller community-based plants.

To pitch waste-to-energy to the U.S., however, an activist would have to explain why waste-to-energy failed the first time it was introduced. Here, Humes tries to do just that, showing how the U.S.'s focus on large-scale operations stopped it from finding the success that Denmark did.

Ultimately, Themelis believed that what was really needed in the U.S. was a change in culture to become less wasteful. Both Themelis and Andy Keller of ChicoBag saw recycling as simply a coping mechanism to help Americans feel better about overconsumption. Plastic bag bans represented a first step to directly addressing the problem. But problems remained, and even cities like Portland faced massive resistance to simple ideas like food scrap composting (which involved less regular trash pickup).

As the chapter ends, Humes once again connects everything back to consumerism. While waste-to-energy is an important option to consider, it is ultimately not enough to fight back against consumerism, which has proven again and again to be the motivating force behind the garbage crisis.

CHAPTER 12

In 2011, Bea Johnson was a typical resident of the San Francisco suburbs who didn't see her family's habits as particularly wasteful. When she moved from a big house to a smaller apartment that was supposed to only be temporary, however, she realized just how many of her possessions were unnecessary. Johnson told her husband she wanted to try to keep living a more pared-down life. They ended up buying a much smaller home, and while their decision was better for the environment, it also meant they had more money to spend on other things.

At first, Johnson's story may seem like another in the vein of Keller's or the TerraCycle partners. While it does follow the same broad patterns of a person realizing the impact of waste for the first time and subsequently feeling motivated to do something, Johnson's story also has some unique elements that made the process different for her.

Johnson was French and originally came to the U.S. as an au pair. Eventually, she founded a company called Be Simple that helped people declutter their homes. Many people who visited Johnson's new home were surprised and didn't understand it. The Johnson family set limits on what they could buy and how much of it—for example, a limit on clothes to buy each year. While it might sound time-consuming, Johnson found that it actually freed up time for her.

Johnson's French background perhaps predisposes her to bring an outside perspective to U.S. culture, showing that there is value in looking past preconceived ideas. The shock that people experience in Johnson's home reveals how many people have a negative reaction to having their own assumptions challenged.

When Johnson's home appeared in a magazine photo spread, touted as a "Zero Waste Home," it provoked strong reactions. While many were inspired by the photos, a minority criticized Johnson. Some pointed out substantial issues (her family's annual carbon-heavy flights to France), while others got defensive about practices they simply found strange (such as Johnson's decision to digitize her children's artwork, then recycle the hard copies). Johnson admitted that she wasn't perfect but wondered why her lifestyle made so many people angry.

Like many solutions to the trash crisis, the ones offered by Johnson were imperfect and, in some cases, only replaced old problems with even worse new ones. Nevertheless, Humes argues that on the whole, there was a lot of value to what Johnson did and that the negative reactions to her work revealed more about how defensive people get when forced to consider that their own beliefs may be flawed.

Many have asked Johnson if it's possible for "ordinary" people to make a difference. While some individual environmentalists have made a big difference and drawn praise for their efforts to clean up trash, Johnson seemed to face resistance because she was asking people to look at internal trash problems instead of external ones. Johnson remained optimistic and kept seeing small signs of progress like the growing acceptance of reusable store bags.

While Humes chronicles the difficulties of reform in detail, Garbology argues strongly for the possibility of individuals to make real change in their communities or even the world. For this reason, the story of Johnson is triumphant because it shows how people can change their own lives in order to help bring about a larger culture shift—and perhaps finally bring about a decline in consumerism.

EPILOGUE

After writing *Garbology*, author Edward Humes reflected on how, when he originally set out to write the book, it was about every American's 64-ton lifetime trash legacy, not **102 tons**. Humes discovered midway through the writing process that the U.S.'s trash **addiction** was actually larger than he realized. Rather than taking these large numbers as a symbol of powerlessness, however, Humes decided to focus on what could be done to change things.

This section shows that while Humes cares about getting the little details right, ultimately, these details are most important for how they relate to the bigger picture. In this case, the specific number 102 isn't itself important for anything other than the fact that it's memorable. The fact that the number is so large, however, helps convey just why waste in the U.S. is an addiction and why it needs an urgent solution.

Humes saw the difficulty of tracking trash not as a crisis but as an opportunity to consider a new way of doing things. He believed Americans had become too accepting of wasteful practices by big businesses. After inviting readers to submit their own garbage-fighting solutions, Humes laid out five of his own best suggestions: 1. *Refuse* (to buy unnecessary things or accept unnecessary trash like junk mail); 2. *Go Used and Refurbish*; 3. *Stop Buying Bottled Water*; 4. *No More Plastic Grocery Bags*; and 5. *Focus on Cost of Ownership* (of "cheap" disposable objects compared to durable, long-lasting ones).

Humes takes a practical approach and wants to make sure that there is no confusion from readers about the messages they should take away from his book. His concrete list of suggestions shows that he is interested not only in diagnosing a problem but also in providing specific ways to take action to solve it. Notably, these suggestions are all relatively easy for an individual or family to implement.

Humes concluded by reiterating that cutting waste is always a good idea: "economically, environmentally, and morally." The **102 tons** of waste doesn't have to be the end of the U.S.'s trash story; there is still time for people to make it the start of a new story.

The ending of the epilogue reiterates the idea that fixing the garbage crisis will be a community effort and that average people have power to do something about it.

HOW TO CITE

To cite this LitChart:

MLA

Gahr, Tim. "*Garbology.*" *LitCharts*. LitCharts LLC, 18 Apr 2022. Web. 18 Apr 2022.

CHICAGO MANUAL

Gahr, Tim. "*Garbology.*" LitCharts LLC, April 18, 2022. Retrieved April 18, 2022. https://www.litcharts.com/lit/garbology.

To cite any of the quotes from *Garbology* covered in the Quotes section of this LitChart:

MLA

Humes, Edward. Garbology. Avery. 2013.

CHICAGO MANUAL

Humes, Edward. Garbology. New York: Avery. 2013.