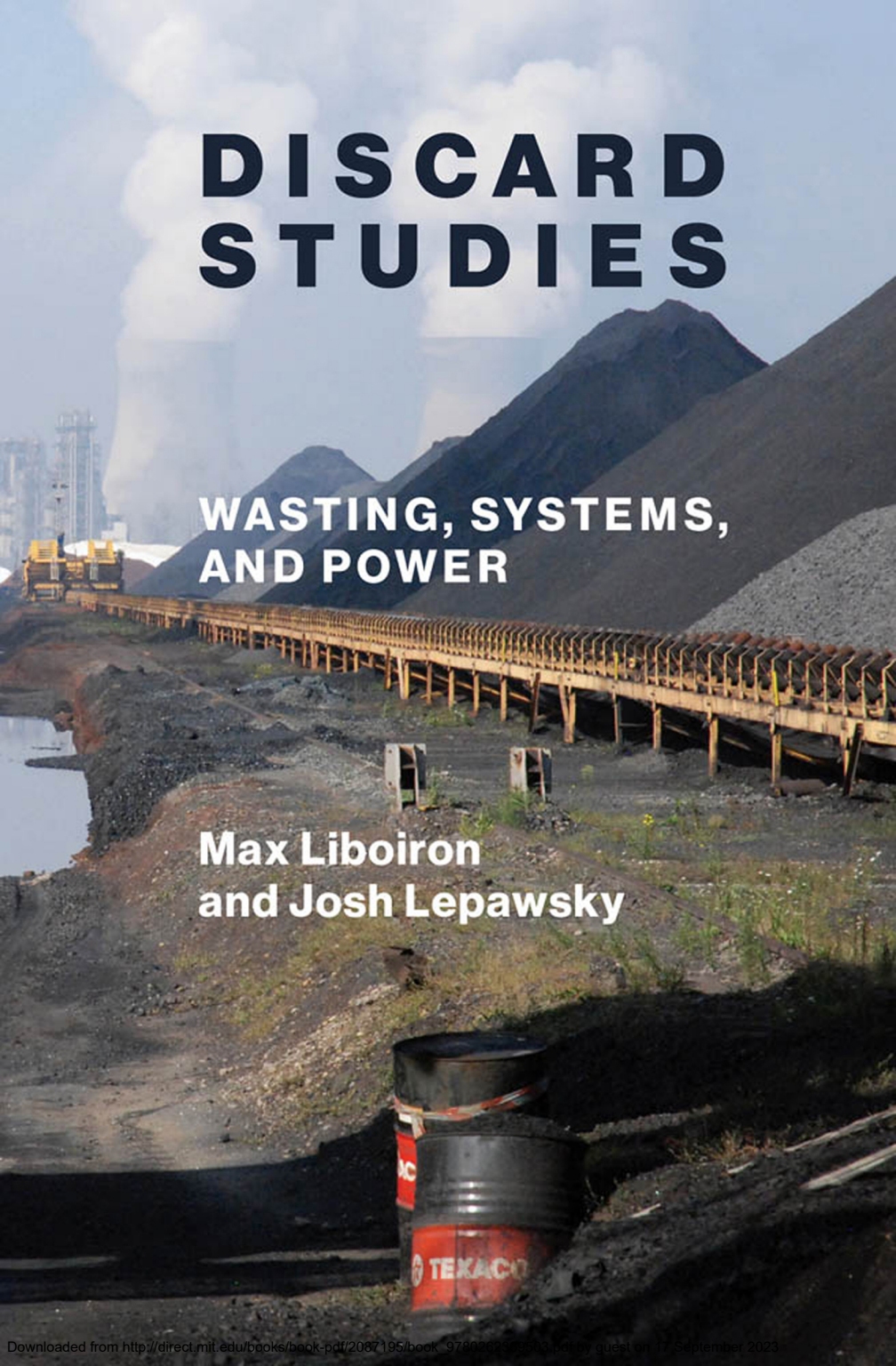
DISCARD STUDIES

WASTING, SYSTEMS, AND POWER

Max Liboiron
and Josh Lepawsky



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The MIT Press
Cambridge, Massachusetts | London, England

The MIT Press would like to thank the anonymous peer reviewers who provided comments on drafts of this book. The generous work of academic experts is essential for establishing the authority and quality of our publications. We acknowledge with gratitude the contributions of these otherwise uncredited readers.

This book was set in Stone Sans and Stone Serif by Westchester Publishing Services.

Library of Congress Cataloging-in-Publication Data

Names: Liboiron, Max, 1980– author. | Lepawsky, Josh, 1972– author.
Title: Discard studies : wasting, systems, and power / Max Liboiron and Josh Lepawsky.
Description: Cambridge, Massachusetts : The MIT Press, [2022] | Includes bibliographical references and index.
Identifiers: LCCN 2021038762 | ISBN 9780262543651 (paperback)
Subjects: LCSH: Waste products—Philosophy. | Waste products—Social aspects. | Refuse and refuse disposal—Philosophy. | Refuse and refuse disposal—Social aspects. | Waste (Economics) | Power (Social sciences) | Marginality, Social.
Classification: LCC HD9975.A2 L53 2022 | DDC 363.72/801—dc23/eng/20211227
LC record available at https://lccn.loc.gov/2021038762

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Acknowledgments

Once upon a time in New York City, Dr. Robin Nagle had a doctoral student named Max Liboiron who was just starting a dissertation and another doctoral student named Samantha MacBride who was just finishing. Each of the three had different approaches to studying systems of waste and waste management, but all were united in a dogged commitment to ethics, accountability, and the implications of their work for those outside of the academy. Indeed, as an anthropologist-in-residence and former sanitation worker (Nagle), the deputy director for recycling in the New York City Department of Sanitation (now director of research and operations at the Bureau of Recycling and Sustainability; MacBride), and an activist (Liboiron), each showed the others the nuances of community accountability in research on waste. Thank you, Robin and Samantha, for those invaluable early lessons as well as your trust and unwavering support of my (Max's) work. You both set my path on discard studies in the best way possible.

It's not often that listening to an academic talk makes you actually sit up, riveted by what you're hearing, but

that's exactly what happened when I (Josh) first learned about Max's work on ocean plastics. Hearing Max speak in New York City in 2012, I knew that it was *essential* for me to follow their work from that point on. I would have been reading, learning from, and citing Max's work no matter where they ended up. What I didn't know—nor could have known at the time—was that I would be so lucky as to later be working *with* Max in the same department and on shared projects such as this book.

This book is based on many years of editing, reading, and writing for the *Discard Studies* blog. Many of the blog posts authored by us (Max and Josh) are rewritten or referenced in this book. It has been a pleasure to show what happens when you sustain a regular conversation for nearly a decade and can weave those choppy but consistent lessons into a logical, longform text like the one you're holding.

The *Discard Studies blog* was founded by Robin Nagle, and I (Max) started blogging for the platform as her graduate student, eventually taking over its maintenance and governance. At the time of this writing, I've produced over 450 posts for the *Discard Studies* blog and edited and managed countless more. As I became a busier and busier professor at Memorial University, I needed help maintaining this labor of love. I had only to look down the hall for first Josh Lepawsky and then Alex Zahara, both colleagues in the Department of Geography at Memorial, who are now coeditors of the blog. We had also been part of the short-lived but intensely

chatty, brainy, and lovely Waste and Science, Technology and Environment (WaSTE) group at the university, along with Arn Keeling, Charles Mather, Dean Bavington, Anne Dance, and Grace Akese. This work at Memorial has been supported by Pam Murphy, Norm Catto, Valarie James, Dominique Lavers, and (as chair) Arn Keeling. Conversations with guest authors, editors, and readers of *Discard Studies* have also been paramount in developing our thinking. Thank you to the hundreds of authors, guest editors, and subscribers that make *Discard Studies* what it is.

We also want to thank each other, odd as that might be in this format. While there might be parts of this book that are "so Josh" and "totally Max," the ideas and writing have been unified and developed through our overlapping shared labor and commitment to one another as coauthors. It is exciting, even electrifying at times, to think together on a topic each of us has been considering for over a decade. The nuance, the subtly, and the joy of thinking closely together has been enlivening. At the same time, working *together* has meant that when one of us is teaching overload and doing full time childcare, or when we suddenly become an executive administrator for the entire university for two years, the other can take over. We are confident that the other has our back, has our best interest in mind, will be brilliant without us, and will always check in. Writing together has been a joy.

1
An Introduction to Discard Studies

There is a crumpled cash register receipt in the bottom of the recycling bin. The shine on one side indicates it is thermal paper coated in an industrial chemical called bisphenol A (BPA), which allows the cash register to make marks with heat instead of ink. BPA is one of the most-produced synthetic chemicals in the world, with 7.7 million metric tons produced in 2015 and a projected 10.6 million metric tons by 2022 (Research and Markets 2016). BPA doesn't stay on paper in recycling bins. In addition to escaping from processing plants and distribution through the air (Fu and Kawamura 2010; Bienkowski 2014), the chemical also appears in significant quantities in industrial effluent from paper recycling plants and in recycled paper itself as cash register receipts enter the recycling processes (McMaster 2004). Even more broadly, BPA is on every piece of currency ever tested because the receipts rub against bills in wallets before the receipts are thrown out or recycled. Cash register attendants receive an especially high dose of BPA while they work, and their exposure is increased

when they use hand sanitizers that make skin more permeable to the chemical (Hormann et al. 2014). Furthermore, BPA isn't only in cash registers. It is also used in polycarbonate plastic such as reusable and disposable water bottles, in epoxy resins (like adhesives), and in rotor blade composites in windmills (Research and Markets 2016). The widespread use of BPA and its ability to leach from its host material means that all human bodies carry BPA or its metabolites in blood or urine (Bushnik et al. 2010). BPA is an endocrine disruptor, a class of chemicals that have significant effects at low doses that include cancer, ADHD, asthma, obesity, and diabetes (Bergman et al. 2013). Yet, "notwithstanding the controversy surrounding BPA's toxic effects in food and beverage applications, demand for the chemical is not likely to undergo any drastic change in the foreseeable future" (Research and Markets 2016). These are the relationships—crucial relationships—you can't readily see when you look at the receipt in the bin.

We are familiar with some aspects of waste because we deal with it every day. Yet, as BPA demonstrates, many aspects of waste are entirely hidden from common view, including the wider social, economic, political, cultural, and material systems that shape waste and wasting. Waste always overflows its official meanings, and the technical systems designed to manage and contain it (Moore 2012; Moore et al. 2018). Rather than focusing on material waste and trash as the primary object of study, discard studies looks at these wider systems of

waste and wasting. For example, rather than asking how much people recycle and why they don't recycle more, which would not include the story of BPA, discard studies might ask why recycling is considered good in the first place (Ackerman 1997; Alexander and Reno 2012; Altman 2021; Leonard 2010; Liboiron 2009; MacBride 2012). Instead of an emphasis on the crumpled receipt and its journey through the recycling system, discard studies might ask what allows BPA to be so ubiquitous if it is known to be harmful? How is harm determined? By whom (Murphy 2017a, 2017b; Vogel 2012)? And how do these things change in different regions and over time (Furniss 2017; Strasser 1999)?

This broad and systematic approach to how some materials, practices, regions, and people are valued and devalued, become disposable or dominant, is at the heart of discard studies (figure 1.1). It means that many investigations in discard studies go beyond material waste, though of course the discipline also necessarily includes those materials. Litter, sewage, and trash are all examples of waste, but they aren't *necessarily* the full gamut of concerns to which discard studies attends. Instead of a certain list of objects, discard studies starts with a question: What must be discarded for this or that system to be created and to carry on? To persist, systems must rid themselves of people, places, and things that actually or potentially threaten the continuity of those systems. Wasting is a technique of power, but it's not the only one. For these reasons and others we develop

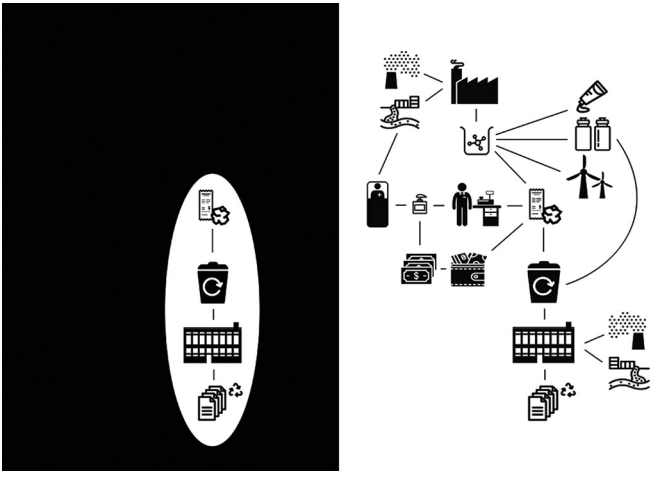

Figure 1.1
The diagram on the left shows the relationships considered when waste is narrowly defined by popular narratives, technical research, and personal experiences. The diagram on the right shows how discard studies approaches waste as a wider set of social, political, and material systems. The righthand side diagram shows part of a circulation network for BPA.
Source: Image by Max Liboiron, 2021.

in the following chapters, we'd like to risk the proposition that discard studies and waste studies can be related and often overlap, but they are not synonymous.

Indeed, as we were writing this book, the COVID-19 pandemic was just beginning in Canada in March 2020, and final edits were completed during Canada's brutal "third wave" in the spring of 2021, where per capita cases in Ontario and Alberta surpassed those in the United States (Blum 2021). We realized that most of the arguments and concepts in this book are well suited

to explaining the trends around how people are understanding and acting in a global pandemic. For instance, it was obvious that people were not autonomous units whose individual behavioral changes, even added up, could scale up to stop a virus. Instead, we saw how health systems, economic systems, political systems, and cultural and social systems interlock and relate to one another in sometimes predictable and sometimes unpredictable ways (e.g., Loreto 2021). We saw how some people were turned away for health care while others had entire teams mobilized to ensure their health (Verghese 2021). As vaccines continue to roll out, we see a surplus of vaccines and no-shows at vaccination clinics in some places and black-market vaccines and oxygen going for thousands of dollars in others. And of course, we saw that some people are more vulnerable and likely to get the virus—the same people who are already disadvantaged in economic, political, judicial, and other social systems.

We realized that the main theories, concepts, and techniques we know from discard studies are able to describe and help interpret instances of value and devaluation, the wasting of some lives and not others (necropolitics), dominant structures and how they are maintained or threatened, and how hierarchical categories are formed and do their work. To that end, throughout this book we consistently talk about waste and wasting in terms of materials like plastic and recyclables, but we also often talk about the pandemic. We believe that using discard studies to study instances

that are discarded but not necessarily trash is a way to extend the utility and breadth of the field beyond waste while simultaneously nuancing and even challenging the field. This is why we understand discard studies to be something more than simply studies of waste.

As more attention is being paid to waste and wasting, valuing and devaluing—by popular media, policy-writers, activists, engineers, and researchers—it becomes even more crucial to contextualize these problems, materialities, and *systems* of discard. We believe that one of our tasks as discard studies researchers is to trouble the assumptions, premises, and popular mythologies of waste so discussions can address wider systems and power dynamics rather than remain mired in technological or moral fixes (Recycle more! Don't use plastic straws!) that deal with symptoms rather than origins of problems (Liboiron 2014a, 2014b; Rittel and Weber 1973). While we know much of waste, pollution, and discarding, we acknowledge that this is also an extremely partial perspective that is based on a particular scale, a specific genre of waste, and a limited region. The field of discard studies is central to thinking through and even challenging the intuitive and familiar aspects of waste and wasting.

Thus this text does not aim to survey the field of discard studies (see Reno 2016 for an excellent review) nor provide an authoritative reference on its key texts or topics (see Zimring and Rathje 2012 for a two-volume encyclopedia on the topic). Instead, we strive to show how some of the theories and methods in discard studies

can be applied to a broad array of cases, many of which are not focused on waste, trash, or pollution, and how discarding, generally defined, is one way to think about (and change!) the ways dominant systems produce and maintain power.

In short, the core commitment of this book is to show the role of waste and wasting as a technique of *power*. Here, "power" refers not to overt domination and coercion (the ability to force people to do things) but to the way that some things seem true, natural, and good and how those meanings are reproduced in particular ways that align with particular interests. In the words of Michel Foucault, "power produces; it produces reality; it produces domains of objects and rituals of truth" (1977, 194) which have real material effects. For instance, our first example below discusses how "waste" in the environmental movement has come to mean "household waste," which in turn directs environmental action toward changing consumer behaviors. But the vast majority of waste, and thus the most significant locus for action from the perspective of scale, is industrial. It's not that certain industries consciously hatched a plan in boardrooms to control the meaning of the term "waste" (though this can and does certainly occur: Al Weswasi 2019; Oreskes and Conway 2010; Schlichting 2013) but that myriad actors (including but not limited to people in boardrooms), infrastructures, histories, events, cultural values, and other components of systems interlock to make some things seem more real, more truthy, more likely, and more feasible.

The five chapters of this book build on one another, creating an increasingly nuanced argument as the book progresses. In particular, the main theories we build up include the following: a theory of relationships, articulated at scale (chapter 2); a theory of power, where threats to certain types of relationships are dealt with at various scales (chapter 3); a theory of difference, which is one way to deal with threats to power, articulated through categorization and stereotypes (chapter 4); and, finally, we end with a chapter on "discarding well," where we think about examples of where institutions and groups make change *through,* rather than despite, wasting and discarding.

But first we start with methods. This first chapter goes over the basic techniques of how we understand solid waste systems that we can't grasp from our daily experiences and local knowledge (Moore 2012). We show how these methods can work by using them to unpack common myths and truisms about waste and wasting:

1. Waste means municipal solid waste;
2. Humans are naturally wasteful and are trashing the planet;
3. Waste and pollution are externalities of economic systems; and
4. Purity can be achieved through cleanup.

Building on the work of critical discard studies scholars, we show that each of these truisms is based on

assumptions that do not hold up to critical (questioning premises) and empirical (data- and case-study-based) research. Moreover, we argue that these ideas come from somewhere, and when they become truisms then certain definitions of waste, specific notions of responsibility and agency, and particular terms of action are normalized at the expense of others. This is part of what we mean by power (Connell 1987, 107). As we work through each truism, we articulate various methodologies used by discard studies scholars to do their work: defamiliarization, denaturalization, decentering, and depurification. These techniques are not mutually exclusive, and they often work in tandem, as these examples show.

Myth 1: You Know Waste (Defamiliarization)

At the personal, everyday scale, the waste you know is likely household solid waste. Municipal solid waste (MSW) usually includes household waste and recyclables in addition to some commercial waste, construction and demolition waste, and medical waste. But MSW accounts for very little waste produced overall. The vast majority of waste by weight, by volume, and by toxicity is industrial solid waste (ISW).

Some statistics say that 3 percent of all solid waste produced is municipal solid waste and the other 97 percent is industrial solid waste. There is some debate about these numbers: they are based on only two reports by

the US Environmental Protection Agency (EPA) from the 1980s (US EPA 1987, 1988; MacBride 2012); they are self-reported by industry and so cannot be verified (Atlas 2002); they do not take mining into account even though other studies show that mining is the largest portion of industrial-scale waste (Keeling 2012; Statistics Canada 2012); and the numbers change radically when water is removed from the equation because much industrial waste is liquid, some portion of which is treated and discharged into waterways under the Clean Water Act in the United States (MacBride 2012). Even with all of these issues taken into account, ISW is certainly larger than MSW by an order of magnitude, and the 97–3 split holds fairly well (Liboiron 2016).

Let's look at electronic waste (e-waste) as an example (see figure 1.2). There is considerable activism and public attention around reducing the toxic effects of e-waste such as cell phones and laptops. Yet every exported item of discarded consumer e-waste from the United States is half the weight of how much waste acid is produced by a *single* industrial smelter that produces copper for those electronics and other commodities (see figure 1.2 and Lepawsky 2018). E-waste action would have a greater impact if it were directed at industry rather than consumer recycling. This relative scale is true of most forms of waste.

One of the main analytical goals of discard studies is to defamiliarize waste. "Defamiliarization" is a term coined by Viktor Shklovsky in 1917 in regard to literary and poetic devices that interrupted the reader from

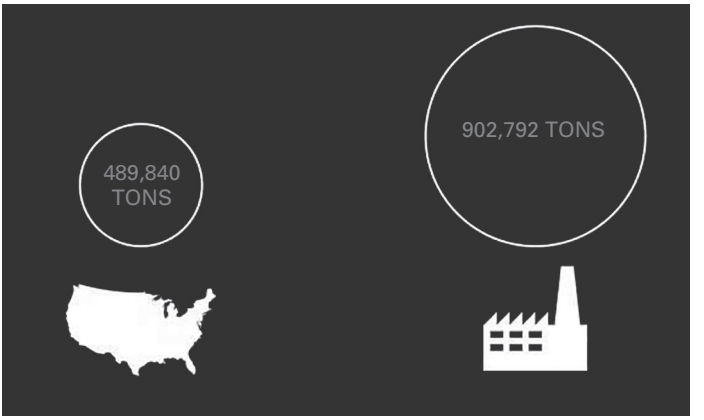

Figure 1.2
Total annual exports of e-waste from the United States compared to waste acid production at a single smelter that creates copper of which the electronics industry is the second largest consumer in the United States. Circles above the icons are proportionate to the tons they represent.
Source: Josh Lepawsky (2018).

using normalized and expected modes of perception, reading, or experiencing art. These techniques were meant to make the familiar strange by stopping the viewer from moving along familiar conceptual routes. This is also the task of discard studies—to interrupt popular, intuitive, expected, and common narratives about waste and wasting by using empirical research and cases from a range of disciplines. This methodology is based on the idea that what is normal is a cultural process, not a natural given state.

Discard studies use various techniques of defamiliarization. One is to question premises upon which arguments are based. For example, Samantha MacBride

(2012) questions the premise "recycling is environmentally friendly" upon which arguments for expanded recycling programs are based. She finds that recycling does not necessarily conserve resources or preserve nature and that it produces pollution (MacBride 2012, 2019; see also Ackerman 1997; Leonard 2010; Rogers 2005). She argues that recycling "has next to zero impact on resource conservation measured in global scales and delivers only weak results in terms of pollution reduction or energy savings" (2012, 8). This statement is well documented in other work that investigates how recycling requires high expenditures of energy (Steinberger, Krausmann, and Eisenmenger 2010), requires considerable virgin materials (McDonough and Braungart, 2002), produces pollutants, and creates products that are "down-cycled" because they are not as robust as their predecessors (McDonough and Braungart 2002, 56–60). Of the 15–30 percent of recyclables that are retrieved from the waste stream, "almost half" are buried or burned due to contamination or market fluctuations that devalue recyclables over virgin materials (Rogers 2005, 176–179).

Recycling infrastructure creates a framework where disposables become naturalized commodities instead of foregrounding waste redesign, reduction, or most importantly, elimination. MacBride argues that a network of social groups, particularly extractive and manufacturing industries within the "recycling movement," have aligned to support municipal recycling even though it is neither environmentally sustainable nor often profitable

enough to support itself without subsidies or alignment with more profitable waste management systems like landfilling (2012, 16). In this way, powerful industries create what MacBride calls a "diversion" from alternative avenues and concepts, with an emphasis on "busyness" that keeps civic society working at small-scale, consumer-focused change that does not threaten the status quo, ensuring "that certain matters never come up for a vote, laws are not passed, options are not considered" (12; see also Altman 2021).

Another technique of defamiliarization is to look at the history of how something became normal and even desirable in the first place (e.g., Hawkins 2011). Susan Strasser (1999) investigates how disposability became a practice in the United States, especially after World War II instilled values of frugality and reuse. What moved Americans from one set of norms around wasting to an opposite set of norms? She finds that Americans actually resisted disposability, sometimes violently, and that coordinated education, advertising, and gender- and class-based coaching were required to normalize disposable culture.

Other methods of defamiliarization include tracking down the origin of truisms or famous quantitative figures such as the 97:3 ratio mentioned above (MacBride 2012; Lepawsky 2018), understanding how some methods for knowing about waste and pollution were decided within their historical contexts—such as how to categorize and count racial minorities or municipal waste (Bowker and

Leigh-Star 2000; Melosi 2008; Strasser 1999)—and "zooming out" to consider the wider social, political, and economic systems in what at first appears to be a neutral technical issue, such as how what counts as hazardous waste or potable water is determined (Wynne 1987; Pine and Liboiron 2015; Hamlin 1990).

Discard studies scholars often have to unlearn and debunk their own common knowledge and find concrete methods to defamiliarize their thinking and develop nuanced expertise. Robin Nagle, who coined the term "discard studies," is anthropologist-in-residence at the New York City Department of Sanitation. She chose the term "discard studies" because it opened up what waste and wasting might include, founding a blog by the name in 2010. Yet even though Nagle has written, taught, and thought extensively and carefully about waste throughout her career, including during her time as a sanitation worker (Nagle 2011; 2013), she once spoke about how people wasted because of feelings of disgust, making wasting a positive activity based in affirmation of things that did not belong (based on Douglas 1966, Kristeva 1982). Yet when challenged with examples of potlatch ceremonies or the sorting practices of waste pickers where wasting was not based on disgust, she realized that she had been reproducing a common narrative about waste and sought to rectify these universal claims. We tell this story because defamiliarization and questioning premises are ongoing activities for experts as well as students.

Myth 2: Humans Are Inherently Wasteful (Methods of Denaturalization)

In one scene from 2016's *The Founder* (Hancock 2016), Ray Kroc, the main character, visits a California takeout restaurant for the first time, in the early 1950s. A woman ahead of Ray assures him the line moves quickly. When it's Ray's turn he glances up at the menu and orders a hamburger, French fries, and Coca Cola. Eight seconds pass, during which Ray pays and then receives his change and order. The speed of the transaction leaves Ray dumbfounded. Can this really be the food he just ordered? The young man behind the counter, acting as both cashier and server, assures Ray it is. But where is all the silverware and plates, Ray wonders aloud, and where should he eat? Smiling in a way that suggests Ray's confusion is not out of place, the man behind the counter helpfully instructs Ray about what to do: "You just eat it straight out of the wrapper and then you throw it all out." There is a pause. Ray is still not entirely sure how to proceed. The man nods encouragingly. Ray finds a place on a nearby park bench and glances around looking for further cues for proper procedure from the crowd enjoying their food. It's a poignant and slightly comedic moment since Ray, played by Michael Keaton, would go on to found the McDonald's fast-food franchise.

The scene shows a moment when a certain way of consuming and wasting is unfamiliar, even strange. Disposability is not an innate human practice even though

throwing disposables out has become so familiar as to seem natural. Yet it has to be taught, and the infrastructure for it must be provided (Liboiron 2013; Reno 2015; Strasser 1999). The tragicomic elements of Ray's confusion work because now, after sixty some years of practice, eating fast food is so familiar to so many that it has *become* unremarkable: the denaturalization is funny. It's also a core technique for discard studies. *How* did certain ideas about waste become so common as to seem natural, and how did discarding work before this naturalization? What are the histories of choices, interests, and efforts of what we now take for granted rather than assuming that the present is the inevitable product of natural development?

To emphasize the novelty of a broadscale industrial shift toward disposability it is helpful to consider that barely more than twenty years before the scene fictionalized in *The Founder*, the notion of planned obsolescence began to circulate in US public discourse. In 1932, a New York real estate developer named Bernard London self-published a series of pamphlets advocating for "planned obsolescence" to solve the Great Depression (London 1932; Packard 1960; Slade 2006). In London's scheme, it would be the role of government to "assign a lease of life to shoes and homes and machines . . . to all products of manufacture, mining and agriculture [and] after the allotted time had expired, these things would be legally 'dead' [and] destroyed" (London 1932, 2).

Whether London coined the term "planned obsolescence" or borrowed it from conversations of the day is unclear; what is clear is that it was a novel idea of the era. It would take decades before planned obsolescence became a mainstream industry strategy to enhance revenue. Not until 1956 could Lloyd Stouffer, editor of Modern Packaging Inc., declare, "The future of plastics is in the trash can" (Stouffer 1963, 1), making a call for disposable packaging that has become the norm today. Yet, then as now, planned obsolescence was and continues to be resisted, including from within industry itself (Slade 2006, 164).

Another example of the naturalization of disposability is how the toilet paper shortages in the early days of the COVID-19 pandemic were understood. Hoarding and panic-buying toilet paper and other goods is a common media headline during disaster preparation. It's the "natural" way to think about commodity shortages. But some journalists denaturalized that truism during COVID-19. Rather than aberrant human behavior leading to a rush on toilet paper, they found that there was instead an issue with supply chains:

> The toilet paper industry is split into two, largely separate markets: commercial and consumer. The pandemic has shifted the lion's share of demand to the latter. People actually do need to buy significantly more toilet paper during the pandemic—not because they're making more trips to the bathroom, but because they're making more of them at home. With

> some 75% of the U.S. population under stay-at-home orders, Americans are no longer using the restrooms at their workplace, in schools, at restaurants, at hotels, or in airports. (Oremus 2020)

This shift in where people went to the bathroom during lockdown affected consumer toilet paper shortages in the United States, Canada, Hong Kong, and the United Kingdom, among other locations. While there were certainly anecdotal cases of hoarding (e.g., ABC7 Los Angeles, "Beverly Hills Police Department Finds 192 Rolls of Toilet Paper in Stolen Vehicle," April 2, 2020), it cannot account for the scale of this international trend.

We can denaturalize the toilet paper story even more and ask why would people stand in line for hours to get toilet paper during an international shortage? What makes toilet paper seem like a need? While toilet paper was invented in the 1300s, it wasn't until the 1850s that toilet paper as we know it today was created and marketed (Blumer 2013). It was an exclusive product for the rich until a series of fear-based advertisements by the Scott Paper Company advised that people would have medical issues in their unmentionable areas if they didn't use Scott's special paper (Blumer 2013, 99; 99% Invisible 2020). Today, toilet paper has become unextraordinary and expected in many places, but not all places (more on decentering below).

These brief examples illustrate a key lesson of discard studies: waste practices, including disposability and hoarding, are specific to a time, place, culture, and

system rather than inherent, "natural" human characteristics. People have to be taught to practice and accept disposability as well as other waste practices. These practices hinge on the provision of certain kinds of infrastructure—such as packaging cheap enough that it can be tossed away, trash containers in public places that are emptied by municipal workers, or indoor toilets that lead to public sewers or septic tanks designed to handle toilet paper—while other kinds of infrastructure, such as metal cutlery and bidets, are removed or never created in the first place (Liboiron 2014a).

Denaturalization is a core strategy within discard studies. When contextual, place-based, situated, and historically specific moments become naturalized and are assumed to be so normal that they are not thought about, denaturalization unearths how they initially became normal and thus can be changed. For example, the commonsense notion that there is a universal "human" who is "naturally" wasteful only stands up if evidence from the historical record is ignored. Instead of axiomatically accepting the notion that humans are inherently wasteful, discard studies turns disposability into questions such as the following: Under what conditions does disposability make sense (Hawkins 2011)? Who is or are the human(s) in mind when "human nature" is invoked to explain wastefulness? In short: Who is the "we" (Chakrabarty 2009; Hecht 2018) of "human nature," who does it exclude, and who does it make normal? How do answers to these questions

change what "solutions" to waste look like? These are the core questions of chapter 4.

Myth 3: Waste and Pollution Are Externalities (Methods of Decentering)

In July 2017, China filed an official notification with the World Trade Organization (WTO) to "forbid the import of 4 classes [and] 24 kinds of solid wastes" including plastics (Ministry of Environmental Protection of the People's Republic of China 2017). Within weeks, recycling systems in Canada, Europe, the United States, and elsewhere were in disarray with nowhere to ship their recyclable discards. The continual, if convoluted, reverse supply network linking household sorting bins in some parts of the world to industrial-scale waste and manufacturing infrastructure elsewhere rapidly underwent shutdown and reorganization. By the end of the year, recycling systems in Canada, Europe, and the United States resorted to stockpiling, landfilling, and incineration while simultaneously searching for alternate buyers to handle the flows of plastic recyclables they could no longer hold (Gregson and Crang 2018). East and Southeast Asia became important alternate destinations for the materials China used to buy (Reed, Hook, and Blood 2018; Pyzyk 2018). Within a year at least one of these markets, Vietnam, had to temporarily

halt imports of these plastics as volumes overwhelmed port capacity (Musulin 2018).

China's 2017 announcement and the ensuing disruption of the global recycling market illustrates how waste is made through relations between centers and peripheries and how the coherence of the center depends on the periphery. Part of what defines waste is its proper place in industrial systems of production. It "clearly belongs in a defined place, a rubbish heap of one kind or another" (Douglas 1966, 161), or in recycling bins, transfer stations, shipping containers, industrial holding ponds, or steel barrels. Each of these receptacles enables the system at the center to carry on, to hold, by leaving that system untroubled by threats to its continuity. In short, most solid waste systems rely on an "away" to keep the center clean—that "away" is what creates peripheries *and* the center. Yet there are always people who live and work in those peripheries (Akese 2019; Davies 2019; Hoover 2017; Reno 2016; Voyles 2015). They, and their regions, become disposable, also called "sacrifice zones" (Lerner 2012).

Recycling is able to be understood as a "green" and morally good practice in Canada, Europe, and the United States because of environmental sinks (places to store waste) in China. Without China, the coherence or "centeredness" of these recycling *systems* comes into question (Liboiron 2018). The center may no longer continue to hold unless a way to manage waste can be

found by which the system's coherence can be reestablished and its continuity reasserted.

One main concept in discard studies is "externality," a term that originates in economics. Externalities are costs or benefits (positive or negative) that accrue to parties not among the original participants in a transaction. For example, getting a vaccination can protect you personally from disease; a positive externality is that it can also offer a quantum of immunity to the wider community you live in. Waste and pollution, however, are always treated as negative externalities, costs foisted onto people and places by the economic actions of others.

In economics, both positive and negative externalities are treated as examples of market failure. Externalities are the result of pricing mechanisms that do not properly capture value, resulting in "free rides" in the case of positive externalities and "uncompensated burdens" in the case of negative ones (Porter 2002, 6). For waste, this means that trash and pollution cause negative externalities on people or groups of people that did not consent to these externalities, and this harm was not properly accounted for in the original calculations of benefits and costs. In both cases, externalities create a center that anticipates and accounts for value, and peripheries where externalities occur. Crucially, these insides and outsides are created through accounting and do not preexist their conceptualization.

Externalities treat the market failures they describe as anomalies or outliers in an otherwise well-ordered world.

Yet waste and pollution are not unfortunate accidental by-products of industrial systems of production but are rather characteristic of all industrial systems, regardless of whether they are capitalist or socialist (Gille 2007; Ofrias 2017; Kao 2013). Such systems of production inherently generate waste and pollution not as outliers or anomalies but as norms. For example, the consistent siting of polluting infrastructure in low-income neighborhoods or on Indigenous land isn't an accident but a strategy (Bullard 2000; Thornbeke 2016). In the early days of the COVID-19 pandemic, particularly in the United States, there was a recurring line that "only x% of people will die" of the virus, and these people, almost always the elderly and disabled, were considered acceptable losses (Ashkenazi and Rapaport 2020; Chait 2020; Pesce 2020; Shammas and Kornfield 2020). Regardless of actual numbers of deaths or whether pollution infrastructure is deemed "safe," these common refrains show which areas and people become normal "sacrifice zones" or peripheries for a more powerful center (Davies 2019; Hoover 2017; Lerner 2012; Stamatopoulou-Robbins 2020). In short, externalities and their peripheries are normal and needed because they are what let the centers hold. We return to this question of insides and outsides, centers and peripheries, in chapter 3.

Discard studies is dedicated to decentering systems that rely on externalization or sacrifice zones and interrogating the power to create centers and peripheries in the first place. Discard studies asks, what kind of

center(s) do wasting and pollution shore up? What, who, and where bear the burden of externalization and being made into peripheries? What are "the uneven relations and infrastructure that shape what forms of life are supported to persist, thrive, and alter, and what forms of life are destroyed, injured, and constrained" (Murphy 2017a, 141–142)?

Questions such as these lead discard studies scholars to examine a much more expansive set of issues than just how to better manage waste and wasting, though these questions are also included. Discard studies methodology brings us to questions of power, inequality, equity, and justice. As such, discard studies is inherently normative: that is, concerned with doing good by explaining and intervening into questions of justice. As biologist Mary O'Brien (1993) argues, normativity is built directly into all research. She writes about how doing research necessarily asks particular questions and not others, in certain ways and not others. Each is a choice that aligns the research with some values, norms, and parties over others. Questions, then, are unavoidably value-laden in that they prioritize some ways of investigating the world and not others.

Discard studies queries what is understood as right and good and how those ideas hold, at whose expense, and for what center(s) (Mol 2002). When a mining company is permitted to create mine tailings in the north of Canada (Keeling and Sandlos 2015), from a discard studies perspective, the center(s) that this allows to

hold is settler colonialism, capitalism, and industrialism rather than prompting a question of better mining waste management. The center, as we have been calling it, is not monolithic but "the sum effect of the diversity of interlocking oppressive social relations that constitute it" (Coulthard 2014, 15). Discard studies considers these both in aggregate and individually for a picture of what waste and wasting accomplish and how this might be made different.

Myth 4: Purity Isn't Cleanup, Dirt Isn't Waste (Depurifying)

Theories of purity are a mainstay of discard studies, especially given the importance of Mary Douglas's anthropological work *Purity and Danger* (1966) to the field (more on this in chapter 3). Douglas argues that "dirt" is "matter out of place" (36); one of her work's central claims is that "our ideas of dirt [and purity practices] express symbolic systems and that the difference between pollution behaviour in one part of the world and another is only a matter of detail" (36). Many other theories build on this work by understanding discard practices as removing that which disgusts us, reestablishing our notions of order, and offering a material expression of separation between what we think is good and valuable versus wrong and worthless (e.g., Hawkins 2006; Shotwell 2016; Thompson 2017).

Michael Thompson's *Rubbish Theory* (2017, 123) builds on theories that treat particular wastes similarly regardless of their material or social origins to argue that objects move between categories of worth and worthlessness, durability and consumption, "quite common[ly]." Such movement, he argues, "occurs whenever rubbish is got rid of, for example, refuse collection and incineration, sewage treatment, the reinstatement of waste land, the clearance of slums, the deportation of undesirable aliens and, at its most extreme, the gassing of Jews and Gypsies in Nazi Germany" (123). For Thompson and Douglas, a list of discards that includes both recycling and genocide makes sense when both are seen as manifestations of morality expressed through the material logistics of segregation, discreteness, categorization, and "getting rid" of undesirables.

But we argue there are few situations where recycling and genocide are the same kind of thing. Thompson and many others present a continuum of discards within a rubric of wasting-as-social-phenomena, where specific geographies, histories, and materialities are "only a matter of 'detail'" (Douglas 1966, 36). We disagree. Because of similarities between sorting and purifying, the latter is often used as a metaphor for the former. At different points in history and in various places, Indigenous peoples, Jews, women, immigrants, 2SLGBTQIA+ people, people with disabilities, and political prisoners are killable, not just peripheral (Mbembe 2003; Bauman 2004; Butler 2011; Raffles 2017). Throughout this book

we argue that these details are *fundamental*, not incidental, to different systems and effects of waste (Furniss 2017). Genocide and sorting recycling not only are different in terms of social, economic, material, spiritual, and political systems but also they are different in terms of power, oppression, and justice. We will touch on the linked issues of justice and materiality here, and chapter 3 is entirely dedicated to concepts of purity and universalism upon which Douglas's work depends.

In short, cleaning up and purification are not the same thing. Our theories of waste and wasting should not fail to distinguish between blue bins and concentration camps. Materials recycling facilities (MRFs), factories, and concentration camps appear to have strikingly similar material and logistical practices of categorization, sorting, and discarding, but that doesn't make recycling genocidal and Nazism environmentally sound. Because discard studies is inherently normative—making arguments and frameworks for examining, understanding, and practicing what is good and right—it is crucial to differentiate between the ethics of cleanup, which are based in separation, and those of purity, which are based in annihilation. These, we believe, are the stakes of discard studies research (for similar arguments about the crucial importance of problem definition in research, see Rittel and Webber 1973; Tuck and Yang 2014).

The difference between cleaning up and purifying is crucial. Today—literally today, as we write this—medical personnel are making decisions about who to save and

who to leave to die as COVID-19 victims overwhelm hospital resources. The people left to die in favor of helping others are consistently the same ones who are externalized in multiple systems: Black people, people with disabilities, people who lack economic advantages, and older people (Hauen 2020; Kam 2020; Mykitiuk and Lemmens 2020; Rosenbaum 2020; Wikler 2020). These decisions are not necessarily made by people with poor morals but rather by medical practitioners whose job is to do no harm and to help people. Achille Mbembe calls this "necropolitics," "the power and capacity to dictate who is able to live and who must die" (2019; Verghese 2021). This isn't an individual power but a systemic issue where some decisions are more likely than others regardless of individual variation. It is why we focus on *systems* of waste, discarding, and devaluing rather than *instances* because it is *systems* that allow some things to make sense, some things to seem valuable or worth saving, and some things to seem natural or inevitable instead of others. Yet, unlike Thompson and Douglas, we are not advocating for a master or universal theory, but rather for thinking about systems in terms of their contexts, materialities, politics, and differential effects.

Conclusions and Points of Departure

Discard studies "stays with the trouble" of difficult questions and situations, as Donna Haraway (2016) would

say, not only because solutionism tends to address symptoms of systems rather than the systems themselves but also because the trouble is already here. Mere gains in efficient use of matter and energy cannot mitigate the tonnage, toxicity, heterogeneity, and harms of contemporary waste (MacBride 2012). In fact, efficiency tends to enhance rather than alleviate demand for resources since gains in efficiency cheapen the production of end commodities (what ecological economists call the "rebound effect" or the "Jevons' Paradox"; see Alcott 2005; MacBride 2019; Shove 2018, 2020). Nor does efficiency lead to justice. In fact, efficiency can use and discard labor at grander scales than other modes of production (Marx 2004; Alcott 2005).

This is just one example of why discard studies needs to look beyond technical tweaking or reform of existing systems and forward to interlocking systems themselves (in the next chapter we'll consider how to look at and think about large-scale systems that can be hard to discern). An example of looking at multiple systems at multiple scales is Sophia Stamatopoulou-Robbins's extensive ethnography on waste practices in Palestine:

> When a Jenin resident smells refuse or stops in the street because her shoe strap breaks days after she purchased the shoes, an array of possible actors is available for blame. She may choose to blame street sweepers, UNRWA [the United Nations Relief and Works Agency for Palestine Refugees in the Near East that provides basic infrastructure like trash collection], the American government that withdrew

> its funding from UNRWA, the political party in charge of the municipality, the Authority [the interim self-government body that exercises partial civil control over the Gaza Strip], herself for walking that route or buying those shoes, China (where the shoes may have been made), the shopkeeper who sold them to her, or "the situation" (*al-wadi'*) [the occupation]. She might blame the individualist ethos (*anania*) many see as having replaced the mass, cross-class solidarity that characterized life during the intifada between 1987 and 1993, an ethos many remember as having inspired them to collectively keep streets clean. (2019, 7–8)

These are just some of the actors, forces, and infrastructures in waste systems that are discernable to someone walking down the street. There are many more besides. As researchers, we also must account for permanent toxicity, gross inequalities and power differentials, the necessity of dealing with multiple systems simultaneously, a need to offer alternative practices as much as critique, and humble narratives that leave room for open and diverse futures (Schendler and Jones 2018; Rittel and Webber 1973).

If discards are necessary for systems to hold together, then differently organized systems are needed that fundamentally *alter* discards rather than eliminate them. The *elimination* of discards, we argue, would be wishful thinking indebted to the myth of purity. Altering discarding means posing the question, "How do you discard *well given specific contexts, materialities, and power relations?*," a question we take up explicitly in the final

chapter (Liboiron 2015c; D'Alisa, Demaria, and Kallis 2014, 86–89). Such a question has no absolute or universal answer. Rather than pursue absolutes or universals, something we critique in chapter 4, we offer the question as an orienting device, a departure point, and an apparatus to assist in diverse groups maneuvering problems of waste and wasting.

We do not seek to define the field of discard studies, nor provide an authoritative text on the field or similar work of introduction or synthesis. Rather, this book is an effort to provide readers with examples and skills to add nuance and intention to how we might wade into and alter systems of discard, whether readers are just starting out or direct some of the largest sanitation systems in the world.

We begin to do this in the next chapter by discussing the partiality of knowledge and by offering a theory of scale. "The Scales of Waste: A Theory of Relationality" dives deeper into the myth that most waste is municipal solid waste produced by consumers. The chapter demonstrates the systemic nature of waste by considering waste at multiple scales as well as the various relationships that matter to the question of what waste is, how much there is, and where it is. In short, we discuss scale as a way to think about systems and relationships.

The third chapter, "Insides and Outsides: A Theory of Power," returns to the idea of centers and peripheries and how they are created. The chapter starts by discussing categorization in social media content moderation: what gets

deleted before it ever gets to your feed and what is allowed to go through. Starting from the premise that dominant systems must find ways to discard people, places, and things that threaten their ordering, we use the case study of content moderation to talk about systems of power. We then move into theoretical work by Mary Douglas in *Purity and Danger* to think about some of the techniques used to keep that status quo safe from threats.

Chapter 4, "There's No Such Thing as We: A Theory of Difference," uses theories of difference to show how resistance to racism and fights for justice can inadvertently reproduce the dominant systems that make some groups of people disposable and others secure. It reinforces the idea developed in chapter 3 that disposability is systemic and relates to threats to powerful centers. Using the case study of "inclusive" efforts to broaden the Black Lives Matter movement, it shows that universalism, stereotypes, and inclusion all have politics of discard and even purification. The chapter ends by outlining some intellectual strategies discard studies has to offer to those working to make change.

The final chapter discusses wasting well. It uses earlier concepts of categorization, sorting, and ranking to talk about theories of change in dominant systems that make some things seem obviously valuable or worthless and others natural and neutral. We start by comparing two city's strategies for getting rid of snow on sidewalks. One city disposes of snow in a way that intentionally addresses gender inequity, while the other makes choices

that knowingly risk pedestrian safety. We extend the concept of wasting well to concepts of refusal and how refusal can be a form of affirmation, of creation. Rather than a utopian vision of a world without discards, we discuss incommensurability and how there will always be conflicting ideas of waste and discarding, value and devaluation. We end the book with a summary of the key techniques, methods, and propositions for a justice-oriented discard studies that keeps power in view.

Our goal as authors is to show that systems and power are at the heart of wasting, whether plastic straws or Black lives, and to offer frameworks to identify and describe these modes of power, critically think about them to question their premises, and intervene to make change. Put another way, we argue that discard studies is about broad systems that waste, where "systems" refers to cultural and social norms, economies and modes of de/valuation, knowledge systems and how some things make sense, even are common sense, while alternatives are hard to imagine, and of course, material infrastructure. These elements of systems are inextricable from one another, difficult yet crucial to study.

2
The Scales of Waste

A Theory of Relationality

Situated Perspectives

Most people know waste from their everyday experience with it. But "everyday experience" varies enormously depending on when, where, and how you live to what work you do. Those of us living in cities in Canada or the United States and not working in the waste industry, for example, probably know waste as part of mundane chores like taking out the trash. There is waste to be sorted, bins to be filled, containers to be brought to the curb. If these sorts of experiences are familiar to you, then you know waste in specific ways. For example, you might have concerns about the volume of waste you see leaving your house or how much plastic packaging comes home from the grocery store.

If, on the other hand, you are in charge of managing municipal solid waste (MSW), then you know different things about waste. You might appreciate just how new contemporary waste management systems are, and perhaps you're embroiled in the logistics of something that

seems as simple as curbside pickup, which is not even fifty years old in many US and Canadian municipalities (Melosi 1981; Herbert 2007; Waring 1895; Nzeadibe 2013). You might also know that despite the challenge of managing MSW, there's a lot of industrial solid waste (ISW) that isn't accounted for in your municipal collection system (see figure 2.1); sometimes your workers encounter trucks carrying ISW at landfills. In the United States, "nationally, 3 percent of manufacturing waste is

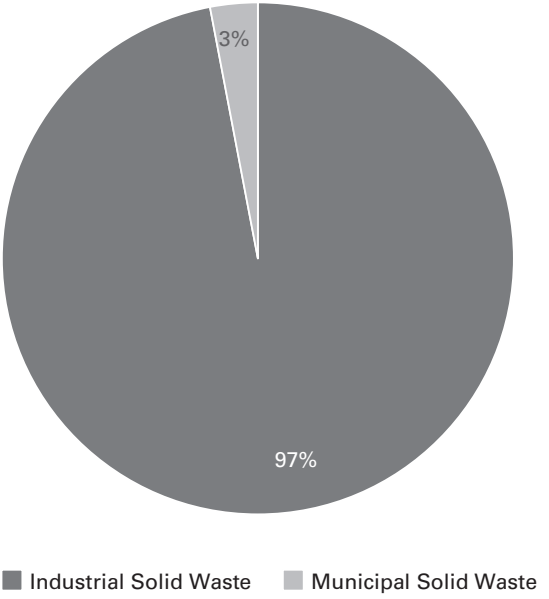

Figure 2.1
Municipal versus industrial solid waste in Canada and the United States. *Source*: Chart by the authors, based on figures from Royte 2005; US EPA 1987; MacBride 2012; Keeling 2012; Statistics Canada 2012; US Congress Office of Technology Assessment 1992.

not disposed of on site, but rather transported to off-site disposal. After leaving the site of generation, this small percentage of manufacturing waste joins municipal solid waste in landfills and incinerators permitted to receive Subtitle D wastes" (MacBride 2012, 101).

If you're an ISW manager for a manufacturer, your perspective on waste is also different. You may know, for example, that your household waste and perhaps even the waste of your municipality pales in comparison to the volume, tonnage, wetness, and toxicity of the waste you manage at work (Liboiron 2016; MacBride 2012). If your operations are located in the United States or Canada, then you know your company is required by law to report volumes of waste deemed hazardous to regulatory authorities: the US Environmental Protection Agency's Toxics Release Inventory or the Canadian government's National Pollution Release Inventory. You likely have to figure out how to create numbers for those requirements out of the processes and practices you oversee. But you also know that there are no federal reporting requirements for nonhazardous waste (the distinction between hazardous and nonhazardous waste reporting requirements in the United States is discussed in MacBride 2012; in Canada, similar distinctions are discussed in Government of Canada 2018). That means there is much more total waste than what makes its way into statistics reported to and by regulatory agencies.

Even the above three diverse perspectives do not cover all relevant knowledge of solid waste (never

mind other types of waste like nuclear waste or medical waste). Waste pickers, for example, know curbside trash and landfills in ways that are different than both households and MSW managers. In Canada, waste pickers can face arrest or legal sanction for collecting waste, and they understand waste can be a valuable and guarded property. In low gross domestic product (GDP) countries, waste pickers may reside in or near the landfills from which they collect waste, which gives them even more intimate knowledge of complex urban waste systems (for example, Srinivasamoha 2013; Campos and Zapata 2014; Samson 2015; Wittmer and Parizeau 2016; Sharma 2021).

All of these ways of knowing solid waste are valid and true, as well as fundamentally partial. They come from specific social, economic, occupational, geographical, and experiential locations and do not necessarily generalize to others. One aim of discard studies is to understand these differently situated knowledges (Haraway 1988) in relation to one another. This does not mean discovering the one true nature of discards by stitching all the situated ways of knowing together as if we can see everything from above (what Donna Haraway calls "the God trick" [1988]), since this would imply that discards are a singular type of object to be known that can be separated from their contexts (Furniss 2017). Instead, we approach knowledge as *situated* (partial) and understand there are other situated knowledges beyond our own that we may never be able to understand or capture

(Agner 2020; see also chapter 4). We work to understand the overlapping but different social, economic, material, political, cultural, religious, ethical, and power relationships between situated ways of knowing and experiencing discards that make some ways of knowing more or less likely to be taken as truth or expertise. The question "What is waste?" is only ever answered partially, in context, and, as discussed throughout this book, within structures of power and difference.

In this chapter we use the concept of *scale* to understand the situated nature of knowledge about waste. We start by talking about why scale is an important concept for attempting to describe and intervene in waste issues. We articulate scale as a way of understanding the relationships that *matter* to defining an issue, and thus of locating where and how interventions might best take place. We conclude with some provocations about how to think relationally about waste and discards using scale as a scaffolding. Our goal is to demonstrate not only why scale is a necessary and even characteristic concept for discard studies but also how scale and relationality takes on ethical and normative dimensions.

Scalar Mismatches

Problems arise when one situated way of knowing disavows its context, becomes dominant to the exclusion of other ways of knowing, or thinks it accounts

for all forms of discard. The effect of such monolithic approaches to knowledge can be termed "scalar mismatch," where one instance is taken to be the whole phenomenon, or where one perspective is assumed to work in all cases.

For example, the idea of cleaning up the ocean of marine plastics sounds like a good idea, but "cleaning up" fails to address the material distribution and scale of marine plastic pollution. In 2010, plastic pollution expert and activist Stiv Wilson did some back-of-the-envelope calculations on this scalar mismatch. Based on a conservative estimate, he calculated that

> to clean the ocean, you'd need to fill 630 oil supertankers to the brim at a cost of about $56,000 each a day to charter (United Nations Conference on Trade and Development). So, to cleanup the gyres (assuming there is actually technology out there to do it which, as of today, nothing has been proven to work), we're looking at a cost of at least about $35 million a day or roughly $13 billion a year, and about 17% of all the oil tankers in service in the world would have to be full time devoted to cleaning it up. (Wilson 2010)

More than a decade after Wilson wrote this, plastic production continues to increase exponentially (more on this below), and the number of plastics in the ocean is likewise increasing. After a decade of trying, there is still no proven technology that works to clean up something as vast as the ocean of something as small as microplastics. Even the Cleanup Array, designed to do

just that, has repeatedly failed and appears to be causing more ecological harm than good, including damaging plankton, missing the smallest and most harmful types of marine plastics, creating marine waste by breaking down offshore, and diverting significant finances from more useful activities for reducing marine waste (see, for example, Liboiron 2015a; Martini and Goldstein 2014; Thaler 2015). In short, the scale at which cleaning up operates and the scale of marine plastics are not aligned.

Discard studies seeks to move away from solutionism that treats waste and pollution as technical problems and instead consider interventions into systems. That is, discard studies takes a relational approach to determine which factors are the most important to focus on; the answer isn't always or even often the final objects of trash or pollution.

For example, a more appropriate intervention for mitigating marine plastics is to focus on the production of plastics that enter the ocean to begin with rather than end-of-pipe solutions that look at plastics after they are made. Figure 2.2 shows that since the 1950s, the production of plastics decreased only twice: during the 1970s energy crisis in the United States, when access to the natural gas and oil that make up the raw materials for plastics was drastically reduced, and in the 2007–2008 financial crisis, also rooted in the United States, which slowed and even stopped some capital-intensive extraction and investment projects. *These* are the types of events and systems that are properly scaled to address

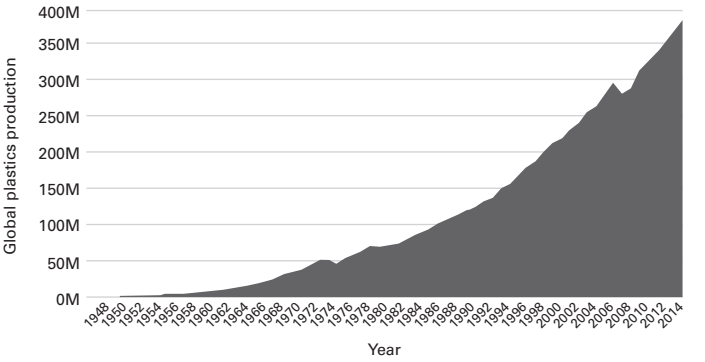

Figure 2.2
Increase of global plastic production, measured in tons per year, from 1950 to 2015. In 1950, the world produced only two million tons of plastics per year. Since then, annual production has increased nearly two-hundred-fold, reaching 381 million tons in 2015. For context, this is roughly equivalent to the mass of two-thirds of the world's population.
Source: Graph based on data from Hannah Ritchie and Max Roser 2018.

marine plastic pollution. In fact, we anticipate that plastic production has likely increased beyond the usual upward trend during the COVID-19 pandemic, not because there is a greater call for disposables but because for the first time in history, oil prices have gone negative. That is, in April 2020, oil was less than $0 per barrel (DeCambre 2020). Both the price and availability of oil and natural gas account for the sharp spikes in the graph.

But there are other aspects to plastics that are not represented in the graph at all. For instance, it does not describe why there is an exponentially increasing

trend in plastic production over time, nor why most plastic production graphs start after 1945 even though synthetic plastics have been produced since before the twentieth century. Factors that do not appear on the graph include the rise of disposable plastics in the form of packaging in the 1950s, which was enabled by a commitment to expand markets (Strasser 1999; Liboiron 2013), and the technical development of plastics during the Second World War by both the Allies and the Axis powers, whose wins were aggressively funneled into consumer goods during peacetime. Before that time, plastics were largely durable items and even replaced environmental problems such as ivory, coral, and tortoiseshell harvesting (Meikle 1995).

When we use "scale," we're not concerned with relative size differences, where cleaning up is too "small" for the "big" economic problem of marine plastics. Scale is instead about the important processes that have significant influence within a given context (e.g., Marston 2000; O-Neill and King 1998; Sayre 2005; Sheppard 2002; Smith 1993, 2004; Swyngedouw 1997). To illustrate how scale is relational, think of how gravity matters to elephants but doesn't matter nearly as much to viruses, whose local movements are more influenced by the capillary action of their host liquids. A virus's global movements are more influenced by the proximity of hosts to one another than by either gravity or capillary action, as we have learned from the COVID-19 pandemic. We have learned the scales at which the coronavirus

does and does not have effects as we live with the pandemic, including what "close" contact means and how masks significantly change relations and can scale up as an effective intervention against contagion compared to distancing and washing hands. This does not mean gravity does not exist or is not important in general but rather that it is less important to viruses compared to other forces.

This means that scale is not a continuum. You can't capture relations by slowly zooming in or out. A skin cell does not "scale up" to become an arm, and an arm cannot be chopped into smaller and smaller pieces until it is a pile of individual, undamaged cells (also, that's gross). A person is more than many, many cells, even if they are made entirely of cells, because they do not act like a collection of cells. Nor do collections of cells act like arms. They certainly influence one another, but they are not in a simple, easily scalable relationship. There are disjunctures between scales where things (e.g., cells, an arm, a person) *change* (sometimes called its ontology).

Philosopher Graham Harman (2018) offers one way to think about the genres of things, which he calls "object-oriented ontology." In his work, an object is that which can neither be reduced down to smaller bits (e.g., an arm to its cells) nor reduced "up to the entirety of all its relations" (e.g., a virus to a pandemic) and still be the thing that it is. In some (but not all) arrangements of relevant processes, cells become arms. In certain conditions, a collection of viruses becomes a pandemic.

But none of these arrangements are automatic or even obvious.

Understanding scale as *relationships that matter* within a situated context has ramifications for action, from policy to management to citizen activism. If an arm is hurt, you put a bandage or a sling on it. If cells are in distress, you ensure the area around them is the right temperature, has the right salinity, and is oxygenated properly. You don't put a Band-Aid on a skin cell, and you don't salinate an arm. These examples are not silly: people often believe that scaling up or down is a quantifiable, additive process. The example above of cleaning up the ocean (one of the largest things in the world) of plastics (most of which are smaller than a grain of rice) with tank-sized vacuums is like putting a Band-Aid on a skin cell. Likewise, many, many shopping bags or straws are not the same as the marine plastic pollution problem, even if bags and straws are made of plastics, are disposable, and are found in the ocean (Liboiron 2020). Scalar mismatches regularly occur around waste and environmental activism.

We can use scale to ask questions about which relationships in waste systems matter so we can better intervene. For the marine plastic pollution example, a scalar question might be the following: What are the relationships and processes that matter to, even characterize, marine plastics, and how might those be influenced, and by whom (Liboiron 2014a; 2014b; 2021)? One of many ways to understand the history and scholarship

of discard studies is as a dedication to questions of scale. Discard studies researchers often ask what the important relationships and processes are that make up a waste phenomenon. We also spend a lot of time solving, debunking, or demythologizing common scalar mismatches.

Scalar Analyses in Discard Studies

A key example of scalar thinking occurred during the sanitation movement in the nineteenth and early twentieth centuries, first in the United Kingdom and then in the United States, where there was a significant change in how waste was understood and treated. We consider sanitarians forerunners to discard studies because one of their main questions was about which social, cultural, economic, and material forces were the most important in disease epidemics in cities. At the time, "many people associated disease with . . . the 'unclean nationalities' of New York's immigrant districts, and with the intemperate or unhealthy behaviors—from drinking heavily to spitting in streetcars—that the inhabitants of these districts purportedly indulged in more often than most city residents" (Burnstein 2006, 23). Poverty, race, and immigration status—markers of difference from white, affluent, already settled urban citizens—were understood as the main factors that produced filth and associated diseases (Zimring 2016). That is, otherness and disease

defined one another through an assumed causal relationship. But the sanitation movement sought to rearticulate the relationships that mattered in urban disease epidemics, arguing that conditions of poverty *created* conditions for disease rather than the other way around.

Arguing for socioenvironmental causes of poverty and disease resulted in completely different sanitation interventions than the ones that preceded them, moving from quarantine and avoidance to municipal sanitation for all city residents and changes in housing laws that addressed overcrowding and lack of clean water (Melosi 2008). In this way, defining a problem in particular ways leads to defining what kinds of interventions, and at which scales, are most likely to impact those problems. These arguments continue today during the COVID-19 epidemic, where researchers show that racialization and racial segregation, rather than individual choice and behavior, play a major role in disease disparities, (e.g., Price-Haywood et al. 2020; Pyzyk 2020; Rodriguez-Lonebear et al. 2020; Yashadhana et al. 2020).

Another common use of scalar analysis in discard studies is addressing the varied relationships between consumer action and waste reduction. The scale of the individual consumer as both a point of blame and unit for solution has been naturalized (made normal and unremarkable) in environmental campaigns such as riding bikes instead of driving, responsible consumerism, and recycling (which we'll explore further in a moment; see Dunaway 2008, 2015; Maniates 2001).

Individualism can be naturalized through per-capita waste statistics. Per-capita waste metrics are created by dividing the total weight of municipal solid waste by the population of a given area, which leads to statements like "Canadians produce X kg of waste per day." This gives the impression that individuals are the main generators of waste. But consumers don't "produce" waste—we are only a waypoint for objects that have been designed to be wasted (Packard 1960; Strasser 1999; Slade 2006). For the rest of this section, we'll dig into what happens to waste relations when the scale is individualized.

Research has shown that even a large number of the same individual consumer choice does not necessarily scale up to address waste production, as many boycotted or avoided products are simply moved to different markets and continue to be produced (Dauvergne 2010; MacBride 2019). This means that not buying disposable packaging whenever possible, even if lots of people agree to do the same, does not scale up to changing how much disposable packaging is produced overall, though it can have an effect on a smaller neighborhood scale (Pezzullo 2011).

For example, in a study of shoreline plastic bags in two municipalities with bag bans, Liboiron et al. (2020) found that one location had a lower percentage of plastic bags than the regional average, while the second location had nearly triple the regional average. While some studies show that bag bans reduce the local use of plastic

bags (and sometimes even plastic bags in waste streams), others show no significant results or changes in either plastic bag use or waste (Gabrielsen 2013; Homonoff 2018; AEA Technology Environment and Associates 2005; Swallow 2011; Waters 2015). This doesn't mean plastic bags shouldn't be banned, but that a bag ban might not impact the issue you're interested in changing.

As figure 2.1 shows, the rise of environmentalism, curbside recycling, packaging boycotts, and green consumerism since the 1970s have not decreased the production of plastics at all; quite the opposite, as the production of plastics continues to increase exponentially. Indeed, plastic packaging remains the largest category of plastic product worldwide (PlasticsEurope 2019). Thus, plastic bag bans do not appear to "scale up" to impact the production of plastics or local shoreline plastics, even if they might affect other things.

Scalar mismatches in the context of recycling is another core area of study and concern in discard studies. One of the foremost thinkers in this area, Samantha MacBride, director of research at the New York City Department of Sanitation, analyzes which relationships do and do not scale (come to matter) in the impact of recycling on the environment:

> How can we evaluate the assumption that plastic recycling reduces the need to extract fossil fuels; or the separate but related claim that manufacturing with recycled inputs uses less energy, meaning lower fuel use economy-wide, meaning diminished

> carbon emissions? It is well known that only a small percentage of global fossil fuel extraction is used directly in plastics production. So even recycling every shred of plastic would not, on its own, diminish the need to drill at current rates by much. . . .
>
> Let's say more Americans recycled their plastics, and this resulted in an influx of more recycled plastic onto the market. Even with robust closed loops achieved, does anyone really think that the executives at one of these multinational [oil corporations] would get to the point of saying, "well, you know, it's good that the need for input materials is being met by recycled plastic, and that means that this year we can scale back production a bit. We don't need to open up a new offshore platform. It isn't required to meet society's needs after all!" . . . in the area of plastics waste we have perhaps the most egregious misuse of claims that recycling is going to address problems related to pollution and climate change. (MacBride 2019, n.p.)

MacBride's work interrogates the assumptions of statements like "recycling saves the environment" by using empirical data and close attention to the details of recycling processes to think about scale (MacBride 2012). Again, this doesn't mean recycling is a useless practice, but that what recycling is useful *for* is not necessarily saving raw materials or conserving the environment.

A strong trend in discard studies is to look at the scale of economies. In the 1960s, American journalist Vance Packard (1960) wrote *The Wastemakers*, which argued that planned obsolescence, overconsumption, "growthmanship," fast fashion ("styling"), and disposability were

the result of marketers and advertisers changing the terms of buying and wasting. Scholars credit his work with shifting the meaning of the term "consumerism" from a positive word about consumer practices to a negative word meaning "excessive materialism and waste" (Glickman 2009). Crucially, Packard's use of the term was about systems of production, not consumer behavior.

Packard's work came close on the heels of industry's strategic use of disposability to expand markets. Just a few years before *The Wastemakers* was published, the editor of *Modern Packaging, Inc.,* Lloyd Stouffer, addressed plastic industry representatives at a conference in 1956: "The future of plastics is in the trash can. . . . It [is] time for the plastics industry to stop thinking about 'reuse' packages and concentrate on single use. For the package that is used once and thrown away, like a tin can or a paper carton, represents not a one-shot market for a few thousand units, but an everyday recurring market measured by the billions of units" (Stouffer 1963).

Vance Packard (1960) and historians such as Susan Strasser (1999), Kristin Ross (1996), Jeffery Meikle (1995), and many others have written about how consumerism and disposability, as new patterns of wasting, had to be accompanied by massive efforts by producers and their allies to teach people how to waste, particularly given existing cultures where people valued frugality, making do, and reuse.

In changing economies, waste takes on new meanings and dimensions. This didn't start with consumer

culture and disposability. Jesse Goldstein's historical analysis of the meaning of "waste" in eighteenth and nineteenth century Britain charts how the term "wastelands" originally denoted common areas "between cultivated strips in an arable field, the spaces lining pathways and roads, or entire fields and forests without other designation . . . [that] can best be understood as a productive remainder. A wide range of occupations for cottagers, very literally 'cottage industries' relied on the waste's resources." (Goldstein 2013, 8, 9). Goldstein describes how these productive commons came to be understood as undercultivated, underused, and unproductive—and thus wasted—by state and private interests seeking to create a capitalist economy of ever-growing value. These wasted lands were enclosed, privatized, and then worked via wage laborers (many of whom had been dispossessed from their own lands) so land could produce surplus value "properly" and no longer be wasted (see also Harris 2004; Bhandar 2018).

In a similar vein of looking at the role of economic systems in making certain forms of waste, Marxian analyses of waste often focus on how capitalist economies based on increasing growth and profit must create some waste, from consumer items to landscapes, to produce value over time (e.g., Yates 2011; Horton 1997; Gidwani and Reddy 2011). While capitalism, where surplus value is the primary economic goal, certainly does lead to specific patterns of waste, some discard studies scholars have argued that *any* economic system predicated

on growth, including socialism and communism, will result in mass externalizations and waste. Growth requires accumulation and extraction that results in waste, no matter how labor, value, and the means of production are arranged (for work on growth and its relationship to waste, see Mueller and Passadakis 2009; Lepawsky and Liboiron 2015; for work on noncapitalist economies that produce waste because of their dedication to growth and production, see Gille 2007; Kao 2013). This is a crucial area of study, and much more work is needed in this area.

However, economic systems aren't necessarily the best or truest scale to understand waste from a discard studies perspective. Waste and wasting, pollutants and pollution, disposables and disposability, all happen at multiple scales and across multiple systems, events, and terrains. Discard studies must consider multiple scales and processes to understand waste. In fact, one trap within waste and discard studies is the allure of generalizing to the biggest scale available: the universal scale. So often we hear attempts to answer the question "what is waste?" once and for all, or we see statements such as "humans are wasteful!" or "we are all destroying the planet!" (we discuss the deep political problems of positing a universal "we" in environmental experiences and crises in chapter 4, but for an early view, see Heglar 2019; Whyte 2016b). These are examples of a tendency to universalize—to take instances and make them the whole, one of the greatest scalar mismatches of all.

Chapter 4 focuses on universalism, a theory that "certain principles, concepts, truths, and values are undeniably valid in all times and places and, by extension, the characteristics of phenomena are invariant. Universal knowledge is therefore the opposite of local, particular, and situated knowledge. It is transcendental, placeless, and untouched by context" (Castree, Kitchin, and Rogers 2013). Many critiques of universalism, including our own here and in chapter 4, argue that rather than locating one true version of the world, universalism is a type of aggressive "self-portraiture" that imperialistically expands a particular situated standpoint and understanding as the proper understanding of the world (Daston 2006; Somsen 2008).

As one quick example of this type of criticism of universalist assumptions, consider how the popular, pro-environmental ban on plastic straws that framed them as pollution was sobered by reminders from disability rights activists that

> able-bodied people are on board with the [plastic straw] ban because it has little effect on their everyday lives and leaves them feeling like they've done something ethical. . . . But a blanket ban could mean people unable to use their hands will need to rely on being fed by a person or carer. . . . By making them available only upon request you've put someone's quality of life in the hands of someone with little knowledge of disability (Bakar 2018; Wong 2019; Jenks and Obringer 2020).

There is no universal waste or discard. Wastelands used to be commons for shared use, until they became understood as spaces of wasted resources. Plastics were designed to replace the ivory and tortoiseshell goods that were endangering wildlife, then became an environmental problem of global proportions (Meikle 1995; 99% Invisible 2015). But neither are cases in isolation—both changes occurred within economic systems, geopolitical moments, advertising and legislation that served some needs over others. Discards are always defined and known through complex systems at multiple scales that can never be known by a single point of view, scale of analysis, or mode of study (Furniss 2017).

Defining Waste?

How might we deal with producing usable knowledge about something that is fundamentally relational? Brian Wynne, a scholar of science and technology studies, argues that a key characteristic of how waste is defined and practiced in regulatory structures that require standards, definitions, and categories is "indeterminacy" (1987). Indeterminate systems, he argues, are fundamentally open. It's not simply that there is a range of things waste can be and we simply don't know which items are waste at a given time (which would be uncertainty); rather, there is no finite and knowable range.

One of Wynne's examples is how two jurisdictions, the United Kingdom and the United States, regulate the same class of chemical compounds—polychlorinated biphenyls (PCBs)—as a category of hazardous waste (1987). PCBs are used in electrical equipment as coolants and insulators, as a plasticizer in paints and cement, and in plastic coatings of wires in electronics, among other applications. They are also toxicants known to be carcinogenic and to disrupt endocrine functioning in humans and other animals (UN Environmental Programme 2008). PCBs are central to the iconic pollution story of Love Canal, New York, where PCBs and other toxic chemicals were landfilled in an area that would later be sites for schools and homes, resulting in widespread cancer clusters in children (Gibbs and Levine 1982; Gibbs 2010; Newman 2016).

Despite the *known* toxic characteristics of PCBs, the United Kingdom and the United States regulate them quite differently. In the United Kingdom, concentration limits for PCBs in landfilled materials are set at 10 parts per million (ppm). In the United States, limits are set at 50 ppm, five times higher. While science can tell us that PCBs are toxic, it cannot say exactly which concentration limit is the best one. Not only are these limits simultaneously right and wrong (right from their own jurisdictional perspective, wrong from the other; right from some laboratory studies and metrics, wrong from other ways of knowing; right for some relationships between government and industry, wrong for others)

but also there is no neutral third party to which regulators or concerned citizens could turn to pass definitive judgment on whether one limit is ultimately right and the other wrong. Wynne writes that even though "waste" and "hazard" can be meaningful terms, those meanings "exist in a twilight zone where no clear, 'natural' definition of them can be given" (Wynne 1987, 1; Balayannis 2020).

This does not mean that "action to mitigate [waste] should be deferred until we have certainty about it. [Instead, discard studies is] concerned with quite a different problem: what is the right thing to do with waste despite the inherent uncertainties [and indeterminacies] that come with any attempt to know it?" (Lepawsky 2018, 105). Waste's indeterminacy can be a tricky issue when it's introduced into debates on what to do about waste (Hird 2012; Gille 2013; Hird 2013).

For example, the problem of indeterminacy can be used cynically by those who are interested in maintaining a status quo, a move made by US tobacco companies from the 1950s until the 1990s and again by climate deniers today (Oreskes and Conway 2010). Such interests may demand certainty about the actual or potential harms associated with toxicants before new or more stringent regulations on their use are enacted, even if such certainty is time-consuming, unavailable, or impossible to achieve scientifically because of indeterminacy. These techniques have, indeed, been used in plastic and chemical pollution debates (Oreskes and

Conway 2010; Shapiro, Zakariya, and Roberts 2017). Such demands are premised on an idea that indeterminacy is something that can be overcome by science and that only once the science is settled should regulatory changes be considered. However, as Wynne (1987) and many other scholars have shown, while science can offer trustworthy knowledge, it cannot ever offer universal proof (Cayley 2010; Jasanoff 2014; Rovelli 2014). Thus, demanding this kind of proof (i.e., certainty) as a precondition of regulating toxicants allows an indefinite deferral of action and the maintenance of the same (Oreskes and Conway 2010).

For discard studies, the intersection of indeterminacy, situatedness, and context poses crucial questions: How do you best act in situations where specific wastes can never be known with full certainty, where relationships aren't fixed? What is the right thing to do despite the indeterminacy of wastes? Where does the drive to define waste once and for all come from, and what work is it doing to reproduce some forms of knowledge, values, and worldviews and not others? While we argue that to define waste universally and ultimately is to misunderstand the situated and contextual nature of waste, we also know that waste definitions and classifications are not merely subjective and random. In the next chapter we talk more about the role of values and power in defining and controlling systems and their discards, but for now we might follow philosopher of science and technology Annemarie Mol (2002) and ask, When

people, places, or things are discarded by systems, what goods are being sought? What bads are being fought? And how is "the good" being set up as good in the first place?

Mol's questions are helpful guides for critically analyzing assumptions about what is good and right (normative assumptions) built into practical questions about what to do about waste. But normative assumptions are also part of how discards are theorized and conceptualized in the first place, including defining waste as a consumer problem; the goodness of cleanup as a solution to waste; the goodness of eradicating plastic straws; understanding recycling as a process that "saves oil" or trees or carbon emissions; and the idea that change happens when individuals collectively do small things. All are assumptions to be questioned: *How* do we know or assume these things and *why* do these truisms and facts circulate while others do not? Who benefits? Which truisms jump scales and obfuscate certain relationships, and to what ends? This line of questioning makes discard studies unique among types of research about waste and wasting—the shift from studying materials that are assumed to be stable, universal, and completely knowable as waste to a focus on the premises and assumptions about discards and how those assumptions reproduce systems of value and power.

3
Insides and Outsides

A Theory of Power

Who and what must be gotten rid of for wider systems, structures, and cultures to persist and maintain themselves? Any system must find ways to discard people, places, and things that threaten its order or, conversely, find ways to include them so they are neutralized as threats. Such ordering practices create many kinds of unevenness. How such unevenness is achieved and with what consequences is a core question of discard studies. We call the maintenance of such unevenness "power," an example of which can be found in chapter 2: banning plastic straws can only be considered "good" by erasing, dismissing, or ignoring people with disabilities. For disposables to be consistently produced and wasted, advertising and waste infrastructures for disposability, including recycling, had to be put in place. We will expand on these ideas in this chapter by talking about how dominant systems and forms of wasting always entail power.

Power refers to a collection of techniques that maintains the integrity of some systems at the expense of others. That is, power is recognized by the unevenessess

and differences within and between dominant and nondominant systems. One way to understand power is as the reproduction of order at one scale and context and the simultaneous contravention of order at another (Liboiron, Tironi, and Calvillo 2018, 335). For example, chronically low levels of arsenic in water interrupts the reproduction of fish but maintains the ability of mining companies to store mining tailings in open-air mounds (Sandlos and Keeling 2016). Here, power isn't about having power *over* something (though coercion is certainly one technique of power) but rather about how some things are maintained, counted as good, become normal, and thus become uneventful while others struggle for recognition, are debated, or are discarded (Murphy 2017a, 2017b).

Discarding is one technique of power among many. Discarding involves rejecting, wasting, annihilating, destroying, prioritizing, or externalizing some things in favor of others. This is a normal part of all systems. Discarding isn't inherently bad—indeed, in chapter 4 we talk about discarding well—but it does produce unevenessess that have different effects for different systems, environments, people, and ways of life, especially if those systems become dominant.

Unevenness is not automatically about oppression. For example, affirmative action practices ensure women, Black people, Indigenous people, people of color, and people with disabilities, among others that labor law calls "equity-seeking groups," are hired because

these groups are systematically discriminated against in hiring practices, resulting in their underrepresentation in many domains. As such, affirmative action is a form of curation that means discarding certain types of applications and elevating others. It is one type of unevenness (targeting hires) to address a more systemic type of unevenness (wider patterns of privilege and oppression that skew the workforce). This doesn't mean affirmative action is inherently good. Indeed, some people believe it is abhorrent and actively fight against it. Others find it necessary but critique it because it fails to address whether the workplace is a safe or inviting place for affirmative action hires. Still others think it is the best way to address discrimination. In all cases, affirmative action as a sorting technique that deals with and produces discards can be analyzed according to theories of scale and relationality introduced in the last chapter as well as theories of unevenness and power covered in this chapter.

Power can be thought of as the integrity of systems, particularly in terms of maintaining boundaries and flows, the insides and outsides of dominant systems. One hallmark example from discard studies is curbside recycling and waste pickup. This allows both the flow of waste from private domestic spaces into industrial-scale landfills and the flow of packaging from industry into domestic spaces (Liboiron 2013). Without curbside waste management that allows disposables to "go away" there is no disposability, as packaging would accumulate to unmanageable and impactful quantities (Coverly

et al. 2008; Liboiron 2018; Reno 2016; Strasser 1999). To maintain this flow, packaging industry groups advocate for this kind of recycling system because such a system allows their production of disposable packaging to be maintained, even to grow, instead of being interrupted (Killinger 2010; MacBride 2012; Liboiron 2015b). Chapter 2 introduced a theory of scale to describe how relationality is uneven within and between systems: some relations matter more than others. This chapter extends scale to consider unevenness in terms of power—the ability to create, maintain, or interrupt certain systems of discard.

This is to say that waste infrastructure and systems are *not* inevitable, coherent, smooth, or permanent. Waste structures have multiple histories, relations, politics, and agencies that "while seemingly coherent, rarely cohere" (Arefin 2019). Nor can infrastructures and systems be "characterized by the political or ideological epoch in which they were first constructed or designed . . . they are constituted by and constitutive of diverse and disparate political rationalities" (Arefin 2019, 6; Gupta 2018; Hawkins 2001) involving "a rich set of negotiated compromises" (Bowker and Star 2000, 34). Indeed, waste infrastructures and systems are particularly "flaky, falling apart forms that constantly call out for projects of management, maintenance, and repair" (Anand 2015). These practices can be studied. Indeed, most of the discussions and case studies in this text and in discard studies broadly are about the management decisions,

maintenance structures, and repair efforts that work for or against the interests of powerful actors. Put another way, discard studies is the study of how systems maintain themselves and how they cohere.

Commercial Content Moderation as Discarding

Other systems that have nothing to do with municipal waste or pollution also discard to maintain their order. For example, social media feeds also have integrity in how they flow and what is centered, externalized, and discarded. The flows of these feeds are kept "clean" and clear using what the social media industry calls commercial content moderation (CCM). CCM is the for-profit creation and maintenance of social media feeds so they are free of content that violates a platform's terms-of-use-policies (see Facebook's and Twitter's respective policies). CCM is enacted via a set of delete/ignore decisions made by CCM workers about what posted content must be removed (deleted) and what may remain (ignored). Common examples of material targeted for deletion include nudity and sexually explicit material, gore, extreme violence, and hate speech (Gillespie 2018; Roberts 2019).

Garbage hauling and CCM might seem worlds apart, but their shared dependence on human workers as labor to keep them running links them. Moreover, both types of labor are unusually harmful to workers. Employment in the municipal solid waste world is dangerous,

especially for frontline workers doing curbside pickup and sorting materials. Data from the US Bureau of Labor, for example, show that refuse and recyclable material collectors are three times more likely to die on the job than are police officers (US Bureau of Labor 2019; see also Cole 2018 Neilson 2019; Nagle 2013). CCM workers are also vulnerable, albeit in different ways—they face precarity, low pay, no or poor benefits (e.g., health care, including mental health), and psychological harm from their work. The psychological dangers to which CCM workers are exposed are significant enough that physical self-harm and suicide are real risks for these workers (Block and Riesewieck 2018).

In the following sections we use plastic recycling and CCM as two case studies to clarify core questions of discard studies: How do systems, structures, and cultures work? Who and what do they get rid of, how, and under what conditions? To briefly preview our argument, consider that curbside recycling and CCM are both about discarding through the use of similar activities—sorting and removing—based on classification systems, infrastructure, and labor. At their core they are both about what stays in and what stays out. Together these two cases illustrate that the principles, practices, and politics of discard are a regular part of broader systems. Discard studies is not a "waste systems" theory but a theory to explain how (and why) all systems waste, as well as waste's relationship to power.

Recycling as Discarding

Recycling is an industrial practice that collects used materials and transforms them into their constituent parts to create raw materials for new objects. The way we use the term is relatively new, having been coined in 1926 to describe sending partially refined oil back through the refining process. Yet the first curbside recycling program was introduced much earlier, in Baltimore, Maryland, in 1874 to manage urban waste and simultaneously create "wealth from waste" by diverting useful materials to industrial processes (Liboiron 2012a). By the turn of the twentieth century, peddlers and small collectors in the United States and Europe were replaced with specialized trans-Atlantic businesses that traded in massive quantities of consumer and commercial discards. This scale and genre of recycling was rebranded as environmentally friendly in the 1960s and 1970s, including through the creation of the recycling symbol, which was sponsored by the Container Corporation of America (Zimring 2005; Liboiron 2009).

While recycling is often more environmentally friendly than obtaining and processing virgin material, especially for materials like aluminum and its ore (bauxite), it is not environmentally benign. First and most significant from an environmental perspective, recycling institutionalizes disposables by treating them *after* they have been created, giving disposables a managed place

in commodity flows that allows them to be produced at massive scales (MacBride 2012). Second, while recycling can decrease resources required to make a product, it still necessitates expenditures of energy and virgin materials and produces pollutants, greenhouse gases, and waste. For example, recycling paper involves using water and electricity to separate paper fibers that must then be deinked, a process that results in toxic sludge (Smith 1997; Virtanen and Nilsson 2013). Recycling can create products that are "down-cycled"—products of lower value and quality than those originally recycled—because they are not as robust as their predecessors, nor are such products usually recyclable themselves; polyurethane plastics, for example, are often turned into asphalt or other end-of-the-line objects (McDonough and Braungart 2002). The industrial process of re/down-cycling looks different in the various regions and countries in which it is carried out, but all versions share the environmental burden of industrial processing.

Moreover, as discussed in previous chapters, there is a widespread assumption that recycling "cuts down on the need to extract (conservation), which in turn prevents some of the environmental damage from extraction that would be taking place without recycling (preservation)" (MacBride 2019). While this *may* occur in certain times and places for specific materials, the data show it often does not. Instead, figures show "growing rates of metals extraction taking place *alongside* growing recycling rates worldwide" (MacBride

2019; emphasis in original). This is also true for plastics and other materials (PlasticsEurope 2016). Recycling also does not save (conserve) money, as the price of virgin materials is often more stable and lower than recyclables (MacBride 2019, 2013; Ackerman 1997). Given these limitations, we can join economist Frank Ackerman in asking, "Why do we recycle?" (1997). Or, from a discard studies perspective: What *are* the systems that recycling maintains and keeps in place, if they aren't based in environmental sustainability or economic recovery?

We argue that recycling is best understood as a form of discard because maintaining its green and good reputation is crucial for allowing the production of disposables—that is, recycling as currently practiced enables waste and wasting. We can use the case of New York City's tumultuous polystyrene ban as an example. On July 1, 2015, a New York City ban on disposable Styrofoam single-serve containers came into effect under Local Law 142 (City of New York 2013). The mayor's office estimated that the ban would keep up to 30,000 tons of waste from landfills and waterways, which is a lot considering Styrofoam's light weight. That April, the DART Container Corporation and Restaurant Action Alliance NYC, among other entities, sued the city over the proposed ban, arguing that Styrofoam (otherwise known as "polystyrene foam" or "EPS") is recyclable. DART Container Corporation even offered to "pay every dime of the start-up costs for recycling" EPS (DART 2015). But

the ban went through. On September 22, 2015, Manhattan Supreme Court justice Margaret Chan overturned the ban, again on the basis that EPS is recyclable (Plastic News 2015).

Why the fuss? Why is there a power struggle that seems to pivot on whether a foamed plastic is recyclable or not? Since the 1970s, industry has consistently championed recycling because it is profitable (Killinger 2010; Dunaway 2015). If a company has reusable bottles it has to pay for those bottles to return, but if it makes cheap disposables, other actors (e.g., municipalities, citizens, nongovernmental organizations, other businesses) pick up the bill for running them to the landfill or recycling station. Perhaps more important, is that recycling has a green reputation that makes disposables appear sustainable as a genre of waste, regardless of whether people actually recycle or whether recycling processes create pollution.

But even with significant and powerful backing, the flow of disposables-as-recyclables was recently interrupted at a global scale when, in July 2017, China announced its ban on imports of solid wastes. This announcement included many forms of plastics. Over the next two years the media in Canada, the United States, and Europe—each main exporters of recyclables that China banned—was devoted to covering what many presumed to be "the end of recycling" (e.g., Albeck-Ripka 2018; Cole 2018; Parker 2018; Parker and Elliot 2018; Wong 2017). Actual changes or outright cessation of municipal recycling

programs that occurred in some jurisdictions in these regions seemed to bear out this storyline. It would seem that China was tired of being an "away" for waste and bit back (more on this in a moment because it's quite a bit more complicated!).

Commercial Content Moderation as Discarding

"Away" is not so much a physical place (though it often involves one) as a designation of a devalued periphery created in the interests of the more powerful center. Things that seem less material, like digital files or content, have an "away" as well. As Sophia Stamatopoulou-Robbins has written, waste infrastructures "are rarely just the technologies that make waste disappear, in part because waste—like the total volume of water on earth—never truly disappears. Waste merely changes place and form. . . . Waste infrastructures are technologies that redistribute waste's burdens rather than making them disappear" (2019, 23). This holds not only for discards like household trash but also for unwanted elements like violence or sex on your social media feed.

CCM requires the labor of thousands of human content moderators working "behind the screen" (Roberts 2019) to curate social media feeds on platforms such as Facebook and Twitter. CCM has rules to help make these decisions, such as Facebook's now infamous rule about gore that allows "no insides on the outsides" (Radio Lab

2018; Lepawsky 2019). What stays in and is valued versus what gets moderated out and discarded is both a part of the flow of social media content feeds and an exemplar of complex patterns of power in terms of the cultural assumptions behind the types of things that are understood as valued or vile and the way human bodies and health are maintained or discarded through CCM labor.

A documentary called *The Cleaners* (Block and Riesewieck 2018) provocatively captures the workaday lives of people based in the Philippines who work as commercial content moderators for US-based companies like Facebook. The documentary interviews workers as they describe their experiences weeding out content that violates Facebook's and other platform's terms of use. One woman describes the "hundreds of beheadings" she has had to watch as part of her job of taking down material that violates company policy. Another woman jokes about all the sexually explicit images she sees and new terms she had to learn to understand what Americans were talking about in posts flagged for her to either leave up or take down. In the words of one of the documentary's main interviewees, "the main goal and mission of a content moderator is to clean up the dirt" (Block and Riesewieck 2018, 00:06:20).

But the normal process of content moderation also makes a mess because moderators often experience harms such as clinical depression and post-traumatic stress disorder (PTSD). CCM contractors' brains and hearts become the dumping grounds for that which threatens the social

media platforms' continuance as moral, safe, and stable virtual spaces. Psychological counseling services are available to moderators when they are employed (Newton 2019a, 2019b); however, the moment they leave or are fired, those support systems end, which is even more pernicious as abrupt endings compound psychological trauma (Perez et al. 2010).

Content moderators are not only devalued in terms of how their mental and emotional states are required to operate as "sinks" (repositories for waste) for violent or explicit media content. They are also wasted as workers. In 2017, Facebook relied on some 15,000 content moderators at twenty locations around the world—including Germany, Ireland, Latvia, Spain, Lisbon, Philippines and the United States—who were mostly hired by third-party contractors (Silver 2018; O'Connell 2019; Newton 2019a, 2019b). This means that most CCM workers for Facebook do not actually work for Facebook (or other platforms), and their wages do not reflect Facebook's norms. Outsourced content moderation pays at or close to minimum wage in a region. For example, in Dublin, Ireland, content moderators make 12.98 Euro per hour, equivalent to between 25,000–32,000 Euro per year. An average Facebook employee in Ireland that is not hired by contractors makes 154,000 Euro per year (O'Connell 2019).

Beyond low pay, many other aspects of contracted content moderation make for poor working conditions. Labor laws that protect employee scheduling, dismissal,

and benefits such as sick leave typically do not cover contract employees (or do so in much weaker ways). This precarity is intensified in a workplace where moderators work under conditions of constant surveillance by managers who require they maintain 98 percent accuracy on their delete/ignore decisions (Block and Riesewieck 2018). Even if they make the correct decision to delete but do so for the wrong reason, their employee quality score goes down, which can lead to loss of employment.

Just as recycling maintains the flow of disposable materials *by design* rather than by accident, CCM has also designed strategies to ensure that the stream of worker disposability is maintained. Content moderators must typically sign nondisclosure agreements (NDAs) that bar them from speaking publicly about the specifics of their employment (Newton 2019a, 2019b). A result of this collection of unequal power relations in favor of contract managers over workers is that the third-party contract staffing firms are at least partially shielded from employee criticisms of their work conditions. Meanwhile, the clients of these third-party firms—Facebook and other brand-name social media platforms—are shielded from criticisms about working conditions because content moderators do not, from a legal point of view, work for Facebook. This shores up the continuation of poor working conditions, and when problematic content does slip through, legal systems intersect with the business of content moderation to make the social media platform less accountable.

Here we note the various forms of externalization that keep the system running smoothly: content deemed problematic by a platform's rules (based in culturally specific values and practices) is removed from its system, yet the normal operation of the process can cause harm to moderators in the form of clinical depression and PTSD. This allows one part of the system to flourish at the expense of another. Workers are externalized by being expunged from the system when they are no longer needed as well as through precarious contract work, surveillance, and nondisclosure agreements ((NDAs). The workers are forced to take with them the emotional and financial costs of the psychological harms their work has caused them.

But much like the case of China banning plastic imports, which revealed the location of "away" for a massive portion of the world's recyclables, the usually invisible labor of keeping harmful content away from social media feeds recently faltered when the COVID-19 pandemic caused content moderators to be suddenly sent home and replaced temporarily by algorithms. The switch was noticeable to platforms users because algorithm-powered moderation resulted in mass blockages of social media posts—the overestimation of filth—rather than a flood of sketchy content: "Facebook sent home content moderators yesterday, who generally can't [work from home] due to privacy commitments the company has made. We might be seeing the start of the [machine learning] going nuts with less human

oversight" (Matsakis 2020; see also Roberts 2020). While Facebook's vice president of integrity (a real position) denied the loss of human moderators to be a problem, both the mass-glitch of gratuitous content blocking in March 2020 and the interruption of recycling networks point to how discarding in systems is one technique that allows those systems to act seamlessly. When discarding is interrupted significantly, the systems warp, buckle, and even fail, allowing us to see discarding as a fundamental process that maintains *seemingly* massive, coherent, and inevitable structures.

Power, Dirt, and Matter Out of Place

British anthropologist Mary Douglas's book *Purity and Danger* (1966) is a hallmark text in discard studies. While the text primarily focuses on religion, her theorizations of religion, power, and "dirt" are intimately related. Building on the work of psychologist William James, who theorized that dirt is a matter of classification (1929, 131; Fardon 2013), Douglas writes that dirt "implies two conditions: a set of ordered relations and a contravention of that order. Dirt, then, is never a unique, isolated event. Where there is dirt there is system. Dirt is the by-product of a systematic ordering and classification of matter, in so far as ordering involves rejecting inappropriate elements" (Douglas 1966, 36). To think of this another way, where there is a system, there must

be rejected elements (dirt), and one way to investigate systems is by studying what and how they reject, abject, and oppress.

When systems are dominant, what they devalue and discard becomes widespread, normalized, and systematic even when some people do not want to participate in those systems. This is power. Douglas writes about how she can "divide the whole of human society into those whose sense of community is for the center and those who are against it. We notice how the center sees the periphery as menacing, and how, seen from the border, the center is repressive" (1980, 1046). While the way Douglas understands power (as a form of strategic control and even coercion by a dominant group) is not the way we articulate power as a function of systems and variously coordinated and uncoordinated actors at different scales, many of the points in Douglas's theory of dirt and systems resonate with our claims about waste and wasting. In this sense, discard studies can be understood to be a theory of systems (as opposed to systems theory) of power *through* wasting.

Many have critiqued *Purity and Danger* and its conception of "dirt" to describe waste (Furniss 2017; Fredericks 2014; Reno 2016), including Douglas herself (2002). Twenty years after *Purity and Danger*'s publication, Douglas wrote that the universalist tendency to classify impurity based on cognitive disorder to categories was a "major mistake" (2002, xiii), citing the text's examples of Leviticus and Jewish food categories as particularly

"reductive." Jamie Furniss, in his body of work on how waste means different things in Cairo than in other regions, persuasively argued that

> while all societies produce waste, and its trans-historic and universal demand to be managed seems incontestable (Stamatopoulou-Robbins 2011: 55), it is also profoundly contextual. Even the most obvious of such contextual factors, such as the make-up of the waste stream (organic/inorganic; high density–low volume/low density–high volume), the repercussions of different urban fabrics on collection service, or the articulation of governmental infrastructures with the local informal sector, are nevertheless often sidelined in attempts to reform "solid waste management." . . . Rather than adopting a universalist approach—asserting, for example, that all waste is ultimately "matter out of place" (Douglas 2002)—our premise should be that although all societies generate waste, what constitutes the category, where it comes from, who is responsible for its creation and management, what sort of a problem it poses and how best to deal with it, are subject to huge variation across societies and to debate within them. (Furniss 2017, 302, 305)

According to Douglas, garbage is not automatically dirt. She writes, "rubbish is not dangerous. It does not even create ambiguous perceptions since it clearly belongs in a defined place, a rubbish heap of one kind or another" (Douglas 1966, 160). Furniss writes that "many contemporary applications of Douglas pay too little attention to the specificity of 'dirt,' treating it as interchangeable with cognates such as rubbish, waste, junk, trash

or garbage" (2019, 306) rather than paying attention to the specific and fundamentally different cultural, material, political, and regional differences in what constitutes waste (Fardon 1999). We agree.

The rest of this chapter is dedicated to specificity and understanding how, when, and under what conditions waste *might* be considered dirt or out of place and when it isn't, with an eye to using the concept as a way to nuance our understanding of power. Our main argument is that to act as if something is "out of place" means it is a genuine threat to overthrowing systems in power, not that something is simply tossed to the side of the road. By using this argument through the lenses of recycling and CCM case studies, we can see how power works by discarding and also how power can sometimes be threatened by discards.

Matter Out of Place, or Simply in the Wrong Place?

When Douglas writes about cultures "rejecting inappropriate elements," she doesn't mean sorting activities like those that characterize recycling. Her main examples of rejection are killing and eradication—what we referred to as purification and eradication in chapter 1. She references drowning babies, strangling roosters, and eating pangolins when they threaten ordering systems that maintain power and normalcy:

> When a monstrous birth occurs, the defining lines between humans and animals may be threatened. If a monstrous birth can be labelled an event of a peculiar kind the categories can be restored. So the Nuer treat monstrous births as baby hippopotamuses, accidentally born to humans and, with this labelling, the appropriate action is clear. They gently lay them in the river where they belong. . . . Or take night-crowing cocks. If their necks are promptly wrung, they do not live to contradict the definition of a cock as a bird that crows at dawn. (Douglas 1966, 39)

Genuine threats to order must be eradicated, not sorted out and neatly laid in bins at the curb. Sorting something spatially, the more geographical meaning of "out of place," is quite different than killing. A theory of power in discard studies must distinguish between the stakes and politics of sorting (trash in the bin, shoes off the table) versus eradication (murder, annihilation, complete assimilation). To return to our example of CCM, we must be able to understand the wasting of workers, and not merely pressing the ignore/delete button, as a central discarding action in the system. Wasting workers is a way to maintain interlocking and uneven systems of class, profit, and accountability (a common practice under capitalism, as the COVID-19 pandemic makes acutely visible; see, for example, Aljazeera 2020; Beech 2020).

This does not mean that littering or pressing delete on a social media post will never be "matter out of place" and a threat to power. Materials, practices, and

their interlocking meanings shift within different arrangements in structures (Furniss 2017). Take litter for example. By definition "litter" is not where it belongs from a spatial perspective. It sits at the edge of the road, in the schoolyard, or on the shoreline when it should be contained in a bin, a landfill, or a recycling center. But that doesn't make litter "dirt." Litter generally does not challenge systems of power, nor does it confuse or contradict cherished classifications that matter. Except when it does.

In the 1960s, when disposable cans and bottles were first being produced in the United States, they began appearing in ditches and cows' stomachs. The public concern was enough to threaten the new order of industrial production as stakeholders began demanding the eradication of disposables (Ackerman 1997; Dunaway 2015; Leonard 2010; Royte 2005). One industry response was Keep America Beautiful, which appropriated Native American imagery to fuel an antilitter campaign, moving accountability to litterers rather than producers of disposables. In *Seeing Green*, environmental historian Finis Dunaway writes that

> Keep America Beautiful [KAB], composed of leading beverage and packaging corporations and staunchly opposed to many environmental initiatives, sought to interiorize the environmentalist critique of progress, to make individual viewers feel guilty and responsible for the degraded environment. Deflecting the question of responsibility away from corporations

> and placing it entirely in the realm of individual action, the commercial castigated spectators for their environmental sins but concealed the role of industry in polluting the landscape. . . . David F. Beard, a KAB leader and the director of advertising for Reynolds Metals Company, [wrote:] "The bad habits of littering can be changed only by making all citizens aware of their responsibilities to keep our public places as clean as they do their own homes." (2015, 81)

This is a scalar argument: it articulates individual action, not production, as the activity that matters ("individualization"). This is also a spatial argument because KAB frames disposables as objects that sometimes "leak" out of waste infrastructure (as litter) and shifts discussions from locations of production to questions about where to best put disposables after they've been created, where disposables are and are not allowed, and how to keep flows moving through space in the right direction. This allows the production of disposables to continue because litter and (later) recycling has been recast as the problem rather than the production of disposables.

Litter becomes deeply "*in* place" based on this social order—in other words, this framing of litter *maintains* systems of power rather that disrupts them. Litter is a case where trash was potentially dirt as a threat to power—citizens were demanding that industry eradicate disposables—but was then made nondirt as individualized litter when industry found a way to neutralize the threat of citizens' demands for regulation on the

production of disposables by convincing the public that litter has a place (i.e., in the trash can or the recycling bin). But litter can become dirt again, as the case of New York City's 2015 polystyrene ban/reversal/new ban exemplifies. Recyclability makes disposables like polystyrene "in place" by greening them, and arguments that they are not green make them a threat to the established industrial order.

The way waste flows in some ways and not others, to the benefit of some groups more than others, in line with certain ideals and values but not others, is power. These are the norms and structures that are at stake of disruption when trash becomes "out of place," a rare but not impossible occurrence. Our examples show that there is a wide array of struggles, strategies, and infrastructures dedicated to maintaining order and that much effort is expended to ensure waste is kept in place and neutralized as a threat to power, rather than being out of place. "Out of place waste" seems to be rare, and the gift of Douglas's work is to frame how contests over power are constantly being maneuvered by actors in different positions.

Discarding Is a Technique of Power

Sorting, segregation, and cleaning are often *techniques of power* via eradication that are manifested at various

scales. Anthropologist Hugh Raffles discusses hygiene as a technique of power in 1920s Germany:

> It was at this time that the new discourses of hygiene (which brought together eugenics, social Darwinism, political geography, bacteriology, parasitology, and entomology), new technologies of quarantine and delousing, and the development of bureaucratic institutions initially dedicated to the eradication of disease shifted with little friction to the eradication of people. The elimination of disease purified both race and society—by the mid-1930s, one and the same—and, increasingly, the human victims of disease were seen as indistinguishable from its nonhuman carriers: rats, lice, and other invasive and parasitic "vermin." (2017, 176)

Social order in this context refers to ordering the world, and dangers to that order—threats to power—must be eradicated. "New" technologies or practices around waste and pollution are often inscribed along old lines of power and disempowerment, as Raffles's foreshadowing of genocide reveals. Today, researchers can see this in action during the COVID-19 pandemic in Canada and the United States, as reported by Robyn Maynard and Andrea Ritchie (2020):

> A white woman calls police on a young, Black Bahamian man she perceives as breaching social distancing protocols in Halifax, Nova Scotia, leading to his arrest and potential exposure to COVID-19 through contact with the officer and others at the police station. Dr. OmiSoore Dryden, an associate professor of

community health and epidemiology at Dalhousie University and witness to the event, reports that when she protested the officer's actions, he told her that social distancing did not apply to law enforcement officers.

Another example: In a predominantly Black New York City neighborhood, a woman out with her boyfriend reports being tear-gassed, arrested, and forced into a filthy cell with two dozen other women and no soap for thirty-six hours. Now her employer won't allow her back to work for fears she has been exposed to COVID-19 (Speri 2020; see also Oppel et al. 2020; Narayan 2020).

In these examples Black people are not simply spatially "in the wrong spot": there are also certainly elements of racism and exclusion. In a white supremacist state, Jews, Black people, Indigenous people, migrants, people of color, and those deemed "other" are threats to established power. Efforts at ordering society, whether in terms of public health, policing, or wasting, will always attempt to discipline threats to power.

We can use Douglas's work in *Purity and Danger* "unfaithfully" (Murphy 2017a, 149) by recognizing the limits of her primitivist and reductive framework and instead focusing on her catalog of *techniques* to keep matter in place when threats to power emerge. We now use examples from different empirical studies of waste and discard to show how some techniques of power operate through discarding. While Douglas enumerates each technique in *Purity and Danger* as if they are separate and escalating strategies, they also work in concert,

and any case of keeping waste "in place" can be subject to numerous intersecting strategies.

First, Douglas discusses how "labell[ing] an event of a peculiar kind [allows threatened] categories to be restored" (1966, 39). Her example is "monstrous births," or deformed babies that are labeled as "baby hippopotamuses, accidentally born to humans and, with this labelling, the appropriate action is clear. They gently lay them in the river where they belong" (1966, 39). Angeliki Balayannis's work on toxic waste removal demonstrates that such labeling and categorizing can be a lot of work (2019, 2020). Balayannis studies how the removal of stockpiled pesticide waste is managed in a coastal Tanzania site through contracts, inventories, photographs, categories, and protocols as well as material sacks, linoleum, boots, and personal protective equipment. Through these techniques, she writes, "the bureaucratic spectacle creates a controllable world where matter can be contained" (2020, 20). Of particular interest is the categorization of "stockpiled pesticides" that are contracted to be removed versus "pesticide-contaminated soil" that the stockpiles rest on and are not part of the contract: "Daniel (partly) jokingly explained that decision-making about what to 'bag' and what to leave behind was based on the ratio of pesticides to soil . . . if a patch of soil appeared to be over fifty percent constituted of pesticides, then this was a part of the stockpile. Anything less, and the material was merely 'pesticide contaminated soil' and had to be left at the site" (2020, 11).

This type of categorization, which creates a demarcation between stockpile versus spill and organizes action accordingly, is a way to keep matter "in place" by showing action has occurred to address the stockpiled pesticides: "with this labelling, the appropriate action is" not only "clear" but has demonstrably been completed. Indeed, these categories, paired with other techniques such as before-and-after photographs that show the visual absence of a pile of chemicals, are "necessary for this heterogeneous mass of matter to become legible for globalized disposal economies" (Balayannis 2002, 18) and they create "a controllable world where matter can be contained" (2020, 20; for more on the categorization of unruly hazardous waste as control, see Wynne 1987). Of course, Balayannis's investigation of the process uncovers spills, seeps, and residues, but the important work has occurred for global infrastructures of environmental justice and waste disposal: business as usual is able to proceed by leveraging existing dominant modes of categorization, understanding, and circulation. The pollution "disappears."

Yet categorization and its bureaucracies are not inherently the enemies of waste justice; they can be used in attempts to articulate and leverage matter out of place. Plastic pollution scientist Chelsea Rochman and her colleagues (2013), for example, made headlines in 2013 when they published a paper in *Nature* entitled "Classify Plastic Waste as Hazardous." They framed their main argument using scientific categories and logics of toxicity: plastics are currently treated the same way as food

scraps and grass clippings in municipal solid waste management, but plastics not only absorb known hazardous industrial chemicals at a rate of one million times more than the environments around them but also they break down into tiny micro- and nanoplastics that flow more like chemicals than consumer objects. Since plastics act, move, and harm like industrial chemicals from a chemistry perspective, they should be classified as such. Rochman (2013) and colleagues argue, "With a change in plastics categorization, numerous affected habitats could immediately be cleaned up under national legislation using government funds" (2013, 170). In a 2020 triumph, Environment and Climate Change Canada indicated that the federal government will designate plastics as toxic (Baum 2020). Plastic lobby groups are contesting this decision, indicating that it is indeed a threat to their power (Fawcett-Atkinson 2021).

A second technique of power, Douglas writes, is that "the existence of anomaly can be physically controlled" (1966, 39). Her example is killing roosters that crow before dawn. A lion's share of waste studies focuses on the physical control of waste and how geographical containment, circulation, and deposit are central to keeping waste "away" and thus in place. We've already touched on some examples: deleting violent content on social media platforms, industry-sponsored recycling of disposables, police officers arresting Black people who are not "behaving," and the removal of stockpiled pesticides. These all show physical controls that keep the normal flow of things intact.

Indeed, much of the literature in discard studies theorizes "away" and its shortcomings, both in terms of justice (e.g., Bullard 1994; Davies 2019; Solomon 2019) and logistics (e.g., Beckett 2020; Gray-Cosgrove, Liboiron, and Lepawsky 2015; Reno 2016) and, of course, how they intersect. For instance, Coverly et al. analyze the social effects of what they call "smoothing mechanisms" that keep municipal solid waste "from becoming visible and [thus] kept in its proper place" (2008, 2) such as trashcans, curbside pickup done in the early morning or late night, rare interactions with sanitation workers, single-stream recycling that reduces the need to sort, and litter campaigns. All of these physical infrastructural mechanisms, they write, maintain an "established social order" (2) that allows unsustainable economic systems of overconsumption.

In Vanessa Agard-Jones's work on the pesticide chlordecone, she shows how the physical control of certain materials creates and maintains colonial "peripheries" (2013). While chlordecone was banned in the United States and most of Western Europe by 1976, it continued to be used in French colonies like Martinique until the 1990s. Martinique now has some of the highest rates of prostate cancer in the world, which is linked to the pesticide. This difference in the physical control and circulation of a known harmful chemical shows how peripheries are made, not born. It's how colonies are kept in place through pollution.

Other waste literature focuses on what happens when the physical control of waste fails. Vincent Ialenti's

(2021) exposé of the Los Alamos National Laboratory documents how neglecting the safe handling of radioactive waste resulted in an exploded canister of nuclear waste in the US Waste Isolation Pilot Plant. Ialenti shows how social, managerial, class, and physical systems intersect inextricably to succeed, or fail, to produce an infrastructure of containment. A common thread of this diverse literature, from Balayannis to Ialenti, is that physical control is highly orchestrated, never complete or entirely successful, and always contingent.

Douglas's third method for keeping matter in place is avoidance. She writes that "a rule of avoiding anomalous things affirms and strengthens the definitions to which they do not conform. So where Leviticus abhors crawling things, we should see the abomination as the negative side of the pattern of things approved" (1988, 39). Much research on waste describes the use of othering, social taboos, and stigmatization of people associated with waste, but even the "smoothing mechanisms" like trashcans and nighttime pickups that allow waste and sanitation workers to become invisible can be understood as tactics of avoidance.

Some new work in waste studies goes a step further to show how rules of avoidance are often resisted and even leveraged to change what counts as disgusting, abominable, necessarily invisible, and wrong and to make space for often devalued social positions, showing how systems of power are never complete nor monolithic (Reno 2016). Waqas Butt (2019) argues that focusing

on abjection and caste to understand waste workers in Lahore, Pakistan, misses not only significant factors in who becomes a waste worker (such as colonialism and land settlement laws) but also how waste workers maneuver social relations to obtain work and even rights as waste workers. He notes that the monopolization of waste work by certain classes allows for political organization: "Because of the avoidance of polluting materials by caste Hindus and others, lower status groups occupied positions of power and influence as functionaries within departments of medicine, public health, and sanitation" (2019, 23). While he acknowledges that this power is fundamentally limited, he also outlines how some waste workers in Lahore are able to own land and exceed imagined rigid caste and religious categories.

Douglas's fourth technique is that "anomalous events may be labelled dangerous. . . . But it would be a mistake to treat institutions as if they evolved in the same way as a person's spontaneous reactions [such as disgust]. Such public beliefs are more likely to be produced in the course of reducing dissonance between individual and general interpretations. . . . Attributing danger is one way of putting a subject above dispute. It also helps to enforce conformity" (1988, 39–40). Examples of this abound in the criminalization of land protectors (Estes and Dhillon 2019), labor performed by people experiencing homelessness (Solomon 2019), and informal recyclers (Wittmer and Parizeau 2016). There

are also many examples of equating waste with danger as a way to legitimize racialized gentrification (Dillon 2014; Solomon 2019), clearing slums (Akese 2019), and broken-windows policing (Harcourt 2009).

However, we focus on an example that seems more benign: the tragedy of the commons. The tragedy of the commons, argued its originator, Garrett Hardin (1968), is that humans will overuse, pollute, and otherwise trash shared spaces and their resources without state containment and control. Yet, rather than basing the foundations of his theory in "human nature" (Liboiron 2020), Hardin was keenly motivated by fear of low-class and racialized others, according to several scholars, promoting "an idea he called 'lifeboat ethics': since global resources are finite, Hardin believed the rich should throw poor people overboard to keep their [higher class] boat above water" and "that only racially homogenous societies could survive" (Mildenberger 2019a; see also Goldstein 2013; Fortier 2017; Mildenberger 2019b; Brinkley 2020). Through much of his work, Hardin framed poor and "diverse" populations as dangerous on an individual level and as a threat to planetary stability. The racialized and class premises of the tragedy of the commons have become naturalized and are rarely known to the many environmentalists and others who take up the theory. This example points to the import for researchers of waste to carefully consider how waste is kept "in place" through such techniques.

Indeed, Grace Akese (2019) has shown how researchers' well-intentioned labeling of e-waste processing in

Agbogbloshie (a scrap and e-waste processing area in Accra, Ghana) as "dangerous" to health and environment has been readily leveraged by the state military and police to clear scrap-worker housing and dispossess them, their families, and their neighbors of land. She writes, "the land on which Old Fadama/Agbogbloshie [OFA] sits has been a contested space since the pre-independence era when Accra was a colonial city of significance for commerce and colonial administration. This important history, as I will show, despite being directly relevant to the site today, is rarely mentioned in accounts of the economies of waste that have emerged there" (40). Journalism, art, and research that paint Agbogloshie as a filthy, dangerous "Sodom and Gomorrah" (2019, 68) "add to and invigorate the AMA's [Accra Metropolitan Assembly] privileged interests in the land around Korle Lagoon. In this fashion, the dominant narrative of OFA within e-waste discourse is weaponized and used against the very people who bear a disproportionate burden from the processing of this waste and are fighting for their right to stay on the land amidst unequal power relations" (69–70). We choose these two examples of "dangerous" waste to show how the politics of this tactic are not always, or even often, on the side of justice, even when researchers are using or citing the tactic with the best of intentions. Power relations are not just "out there" to be studied, but are also manifested in how, where, and by whom research is done (more on this in chapter 5).

Finally, Douglas's fifth strategy to keep threats to power in place is about how "ambiguous symbols can

be used in ritual for the same ends as they are used in poetry and mythology, to enrich meaning or to call attention to other levels of existence" (1988, 40), folding filth into power structures to give them more ritualistic, symbolic, or other transformative powers. A short description of this technique might be, "if you can't beat them, ceremonially assimilate them." Amelia Fiske (2018) documents this phenomenon in action: To protest dangerous and invasive oil extraction in the Ecuadorian Amazon, people who lived in toxic environments placed their hands in open pools of Chevron's spilled and abandoned oil, holding up their oil-coated hand as way to make the harm visible and embodied. As the gesture gained social and political meaning, Fiske documents how politicians and celebrities who were "politically and materially insulated from toxic violence" (2018, 19) appropriated the gesture in front of cameras, including Ecuadorian President Coreta, who "opened the door to oil extraction in one of the most bio-diverse regions of the world with one hand, and launched an international campaign to denounce the history of Texaco with the other" (2018, 27). This technique of integrating symbols of resistance to annul threats to power is not unique to President Coreta (also see Arefin 2019). Sociologists Bell, Fitzgerald, and York look at the

> central strategy of these public-relations campaigns . . . a process we term "Identity Co-optation," which entails appropriating and reconstructing the identities of fossil fuel industries' fiercest opponents—concerned

> women and mothers—in the delivery of their counterclaims. We argue that the strategic mobilization of women in defense of coal, oil, and gas is a clear example of hegemonic powers attempting to appropriate, embody—and ultimately neutralize—threats to their influence and authority. (2019, 323)

Douglas's techniques to keep matter in place can and do work together. At the same time, these five techniques can be used by activists to *create* threats to power, or at least mitigate oppression, as shown in Butt's (2019) work on waste workers in Lahore. In a similar vein, Syantani Chatterjee (2019) shows how residents of Shivaji Nagar, the area surrounding Mumbai's massive landfill, actively leverage demonstrations of "'failure' to their advantage to stake claims of belonging to the neighborhood, and demand state assistance, albeit often with punitive consequences" (2019, 49). One informant tells her, "You think failure is achieved by doing nothing? A lot of work goes into it. . . . If they ask us to fail, we will fail more forcefully, so the politicians and the government can give us something in return. So, that's our way!" (51). Hijacking representations of failure to become "a medium of exchange" (51) to achieve (always limited) government services uses Douglas's fifth technique in reverse by holding powerful actors hostage to their statements of good government. Of course, much like in Butt's (2019) work, the agency of such actors is heavily constrained, and his work also highlights how the state casts waste workers as "criminal elements and miscreants" to keep the residents of Shivaji Naga "in place."

In the previous examples we've shown that none of the meanings, materialities, or norms of waste and discard are set in stone. In each case, the same symbol, material, or action can be dedicated to either conserving or disrupting the status quo. Simply saying that trash is "matter out of place" or even a threat to power is grossly insufficient.

Accounting for *whether* and *how* acts of discarding, sorting, containing, and cleaning create and maintain or threaten systems of power is crucial for theories of and actions for change (which we discuss more in chapter 5). Bringing reusable bags to the grocery store does not get rid of plastics and their power relations. Deleting your Facebook account doesn't get rid of CCM or online hate speech. Not being racist does not get rid of a white supremacist state. Systems of power that maintain insides and outsides, safety and threats, are at different scales than instances of power. We started this book with a theory of scale—about the relationships that matter—to scaffold this discussion of power as keeping things in and out of place. The next chapter builds on this theory of power to articulate a theory of difference and how differentiation is both key to maintaining order and disrupting power.

4
There's No Such Thing as We

A Theory of Difference

Nain is the most northern settled Inuit community in Nunatsiavut and was one of the first municipalities in Canada to ban plastic bags in 2009. As I (Liboiron) walked along the shoreline in Nain in 2018, nearly a decade after the ban went into effect, I counted well over 100 washed-up plastic bags, roughly 8 percent of all shoreline plastics. The provincial average is 2 percent. Even more confounding, a community called Fogo Island further to the south that also has a bag ban had less than 1 percent plastic bag waste (Liboiron et al. 2020). There's something different about Nain.

In this chapter we talk about difference and the way it matters to discard studies. Differences between things might seem obvious, but there are various theories of difference, including what difference is, how it works, and what makes processes of differentiation good or bad, beneficial or harmful (and to whom). Classifying, defining, sorting, ranking things by value, and other forms of differentiation—creating and acting on difference—are central to discarding. These activities

are not good or bad in themselves, nor are they merely technical. Defining things by one set of characteristics means other characteristics are not accounted for and become unimportant; ranking some things as valuable often devalues others. This means differentiation is almost always related to power structures.

Nain, for instance, is a unique place when it comes to trash. There are two grocery stores that carry one option for most food items. There is no "fill" readily available to cover the surface of the local dump. Instead, the smelly portions of household and commercial waste are burned to keep polar bears and other animals away. Both burned and unburned waste can blow into the Labrador Sea, where locals fish. Like many other Northern communities, the waste infrastructures that most urban southerners (as those who live near the forty-ninth parallel are often referred) take for granted are absent, are restricted, do not work, are underfunded, or are prohibitively expensive. The well-greased small-step approaches of popular environmentalism—buy green, recycle—don't work well in Nain. Even the bag ban, which scales up efforts from the individual to the entire community, didn't work in a way that eliminated the problem. Yet I've seen countless reports about plastics in the North authored by nonresident researchers that latently (or explicitly) blame locals for waste practices imported and installed from the south, or that frame the waste practices as problems that only technical fixes from the south can solve (e.g., Eriksen et al. 2020;

Liubarskaia, Tsurkan, and Artemiev 2019; Eisted and Christensen 2011). These reports recognize important differences (there are unique waste problems in the far North) and maintain a dynamic where the south always knows best, even across those differences (the North isn't really all that different after all and is just sort of failing all the time). This dissonance is a way to simultaneously recognize and dismiss difference.

This knife edge is central to our discussion of difference in this chapter: "the rhetoric of difference is a double-edged sword: a claim to difference can lead to (a degree of) empowerment at the same time that it creates and sustains images of the radical other, who is always subordinate" (Dennis 1997, 83). In this chapter we develop a theory of difference that is not just about paying attention to differences as they exist but also about how differences are built, maintained, and contribute to uneven power relations. Is difference good? Is it bad? Does it exist before we make the categories that articulate differences? What does difference *do*?

First, we argue that without paying attention to differences (as in, specificity), identifying waste and discard problems properly and aligning solutions for them won't succeed. Telling people not to buy food in plastic packaging in Nain won't work if there's only one source of store-bought food. Second, drawing on chapter 3, we argue that difference (as in, categorization and hierarchy) is a main tool of power and oppression that maintains insides and outsides, fixing what is in and what is

out. Used in this way, the tool of difference can make it seem as if the properties of the entity being evaluated originate from that entity, rather than from the system doing the evaluation. For instance, the idea that the North is "inherently" bad at the southern-style waste management of southern-style waste is not a property of the North but instead of southern evaluators and norms.

We look at these issues of power through two techniques of differentiation: universalism and stereotypes. Universalism purports a radical form of inclusiveness wherein humanity shares characteristics irrespective of context. Stereotypes are premised on the idea that there are fundamental differences between different types of people. We show how both universalism and stereotypes are two sides of the same coin. Each eliminates and controls crucial aspects of difference, and both are techniques of discarding through differentiation in a way that upholds dominant power dynamics. This chapter provides examples and arguments for why difference matters in discard studies research as well as practices of discarding. We go so far as to say it's a matter of life and death, not just good research.

There's No Such Thing as We

The media serves up universalizing headlines about environmental waste and pollution daily: "Massive

New Report Proves That Humans Are the Worst Species" (Breyer 2020) and "Your Meat Addiction Is Destroying the Planet (But We Can Fix It)" (June 2013). A *BioScience* article with 15,364 scientist signatories agrees that "humanity has failed to make sufficient progress in generally solving these foreseen environmental challenges" and that "we are jeopardizing our future by not reining in our intense but geographically and demographically uneven material consumption" (Ripple et al. 2017). In these examples, we humans are a trashy and greedy species perhaps better labeled *Homodiscardus*.

The universal "we" is supposed to be a radically inclusive frame that argues that humans share certain fundamental and invariable characteristics even though there might be differences between us. But those differences are a matter of detail, not of essential concern. The totalizing inclusiveness in the examples above frames global problems as coming from a global source and rallies the global troops to collectively be accountable and reverse planetary environmental degradation.

But let's get empirical for a moment. In Nain, who is the "we" trashing the planet? Most local meat consumption is based on local hunting and fishing, in much the same fashion that Inuit have been hunting and fishing since time immemorial. The mass environmental destruction noted in the headlines is more recent. Moreover, terms like "meat addiction" are inappropriate in Inuit contexts, given the term's roots in industrial factory farming rather than sustenance hunting. Are

Nain locals failing to "make sufficient progress in generally solving these foreseen environmental challenges" even though they've collectively organized a plastic bag ban and hunting and fishing doesn't tend to produce packaging? Where do plastics come from in Nain? Who is the "we" in the creation of plastics that end up there? It's not folks in Nain.

There are a few big plastic "we's" in the world that extract oil and natural gas, the raw feedstock for plastics: Gazprom, Exxon Mobil, and Royal Dutch Shell, among others. Next there are the primary manufacturers who make plastic packaging from the raw feedstock: Reynolds Group (which makes Hefty garbage bags among other products), Amcor (which creates food, beverage, pharmaceutical, and personal-care packaging), and Sealed Air (which specializes in food and medical packaging) (CROW n.d.). The primary consumers of these plastics are brand manufacturers whose names readers may be more familiar with: Coca-Cola, PepsiCo, Nestlé, and Danone, for instance, are the company names on most of the washed-up plastic items documented by Break Free from Plastic in the Philippines (#breakfreefromplastic 2018). Each of these plastic production groups—extractors, primary manufacturers, and primary consumers—are their own system with interlocking parts that create plastic packaging and other plastic items, and all of this occurs long before consumers get to the grocery store (figure 4.1).

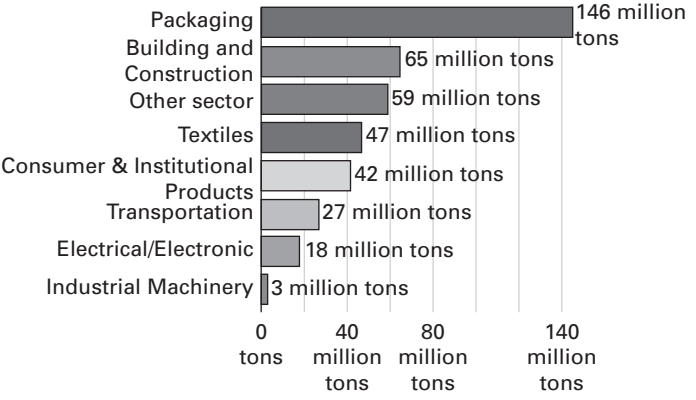

Figure 4.1
Primary global plastic production (in tons per year) by the industrial sector allocation in 2015.
Source: Hannah Ritchie and Max Roser 2018.

The "we" in media headlines that make up "the worst species" usually refers only to end consumers and rarely includes extraction industries, primary manufacturers, and primary consumers or their systems. Considerable research has shown that the top ten carbon emitters account for nearly three-quarters of global emissions, and these are corporations, not citizen consumers with first names and "meat addictions" (Friedrich, Ge, and Pickens 2020; Griffin 2017; Parker and Blodgett 2008). The same type of discrepancy exists for plastics—a small number of companies are responsible for the creation of plastic feedstock and primary production of disposables. Climate change and plastic pollution are not being compared by accident here; they share oil and

natural gas as feedstocks. As such, they also share systems of extraction, financing, political lobbying, and supply chains. Their infrastructures, political economies, special interest groups, and material flows dovetail, overlap, and reinforce one another. Indeed, recent journalism shows that money that used to be invested in oil and gas is instead being directed into plastics (Sullivan 2020). These systems work closely together and even benefit each other.

There is no universal "we" when it comes to waste and discarding, plastics or otherwise. But constantly evoking a global "we" that implicitly refers to consumers and not producers is a way to shift blame, action, and accountability and let those systems continue (Dunaway 2015). This is one reason specificity and difference matter in discard studies—they act simultaneously as research ethics and methodological frameworks (Liboiron 2021).

A Universal We Erases and Maintains Difference

Descriptions of "humanity's" effect on the planet *erase* differences between core emitters and consumers, affluent consumers and nonconsumers, groups invested in pollution and groups invested in environmental conservation. At the same time, a universal "we" *reinforces* difference and injustices by making one group the dominant global group: the norm that can stand in for

everyone, casting those that deviate from the "we" as outliers, outsiders, and deviants. Simone de Beauvoir calls this type of positionality, where one specific group stands in for all groups in general, both "the positive and the neutral [position], as is indicated by the common use of *man* to designate human beings in general" (Beauvoir 1989, xxi; emphasis in origianl). "Woman" becomes more specific, limited, and marked, a deviation from "mankind." Universalism of this sort creates a paradox where "mankind" is supposed to stand in for the entirety of humanity, but it simultaneously marks some humans as less archetypal. This is why the term "male firewoman" is funny, but "female fireman" is not: the "neutral" position doesn't go both ways.

One example of a "humanity" that erases difference even as it supposedly includes everything can be found in the concept of the Anthropocene. Coined by Nobel Prize–winning male chemist Paul Crutzen, "the Anthropocene" describes the current geological age, characterized by the "central role of mankind" (Crutzen and Stoermer 2000, 17) in creating ecological changes on a planetary scale:

> Human activities are exerting increasing impacts on the environment on all scales, in many ways outcompeting natural processes. This includes the manufacturing of hazardous chemical compounds which are not produced by nature, such as for instance the chlorofluorocarbon gases which are responsible for the "ozone hole." Because human activities have also grown to become significant geological forces,

> for instance through land use changes, deforestation and fossil fuel burning, it is justified to assign the term "anthropocene" to the current geological epoch. This epoch may be defined to have started about two centuries ago, coinciding with James Watt's design of the steam engine in 1784. (Crutzen 2006, 13)

This statement contains a lot of universalism. When it argues that "we" are destroying the planet, it conflates industrial processes with human processes. After all, there have been humans and human processes long before the Anthropocene. Industrial and economic processes premised on constant growth and the dispossession of land, however, are relatively new and come from specific cultures. Critics of the term have pointed out that "the Anthropocene is a universalizing project, [and] it serves to re-invisibilize the power of Eurocentric narratives, again re-placing them as the neutral and global perspective" (Davis and Todd 2017, 762). The steam engine, the invention of chlorofluorocarbon gases, deforestation, and other sources of large-scale environmental change did not come from humans generally but from specific cultures, systems, and times. As Kyle Whyte argues, "colonialism and capitalism laid key parts of the groundwork for industrialization and militarization—or carbon-intensive economics—which produce the drivers of anthropogenic climate change . . . 'Anthropogenic climate change' or 'the Anthropocene,' then, are not precise enough terms for many Indigenous peoples, because they sound like

all humans are implicated in and affected by colonialism, capitalism and industrialization in the same ways" (2017, 154, 159; see also Simangan 2019; Simpson 2020; Whyte 2016a; Whyte 2016b). These differences matter.

"We" won't save the planet. Ananya Roy calls "bullshit on the popular Covid-19 line, 'We're all in this together.' Used to bestow naive comfort or solicit sacrifice, this slogan obfuscates the structural inequalities of racial capitalism that are being exposed & deepened by this crisis" (@ananyaUCLA, April 11, 2020). Arguments that "we" are destroying the planet or "we" must all band together as one miss the role of forces like colonialism and racism in how pollution, discarding, and extraction have continually benefited some types and groups of people and burdened others (Agard-Jones 2013; Akese 2019; Arefin 2019; Bullard 2000; Davies 2019; Dillon and Sze 2016; Hecht 2018; Hoover 2017; Lerner 2012; Solomon 2019; Stamatopoulou-Robbins 2020 among many others). This is how universalism, designed to unite "everyone," often simultaneously erases groups, people, histories and, most important, certain targets and scales of intervention. Put another way, universalism is one method that discards the differences that matter and maintains business as usual.

This isn't just an abstract academic theory; many people know that universalism discards difference and actively use it as a strategy. It's not a coincidence that the antislogan to Black Lives Matter is "All Lives Matter." On the surface, maybe it sounds nice that all lives

matter—your life, my life, queer lives, women's lives, Elder's lives, Indigenous lives, as well as Black Lives—but the reason white supremacist groups and sympathizers have adopted All Lives Matter is to make the case that Black lives are not special and are not differently and uniquely oppressed and in mortal danger. It is an aggressive and frankly deadly equalization. Black people are disproportionately killed by police. *Black* lives matter.

Erasure of differences that matter also happens through well-intentioned universalizing politics. "A Herstory of the #BlackLivesMatter Movement" by Alicia Garza (2014), one of Black Lives Matter's cofounders, tells a story about the appropriation of the Black Lives Matter slogan by artists who transformed it into "Our Lives Matter":

> I was surprised when a community institution wrote asking us to provide materials and action steps for an art show they were curating, entitled "Our Lives Matter." When questioned about who was involved and why they felt the need to change the very specific call and demand around Black lives to "our lives," I was told the artists decided it needed to be more inclusive of all people of color. I was even more surprised when, in the promotion of their event, one of the artists conducted an interview that completely erased the origins of their work—rooted in the labor and love of queer Black women. (Garza 2014)

Even when organizers provided parameters around ways to reuse or adapt the Black Lives Matters slogan so that its original values were maintained, groups often

failed to do this, instead opting to extract value from it on their own terms. Regardless of the politics or the good will or intentions of those who promote universalism, phrases and slogans such as All Lives Matter, Our Lives Matter and "we're all in this together" as well as claims about the character of "the human species" are strategies of erasure, externalization, and discard and thus strategies of maintaining power imbalances that move along lines of difference.

Difference as Discarding

Is focusing on difference inherently good? Unfortunately, no. Difference is used to sort and rank different kinds of people. Racism, sexism, transphobia, ableism, ageism, and all the other "isms" describe how some types of people are essentialized—understood as a certain kind of thing that makes them all essentially the same in some way. In this section we discuss the nuances between difference as a form of categorization that erases and devalues and difference as a way to talk about relations that matter for justice. Terms like "Black people," "Indigenous people," "queers," "disability," and so on are used in both ways—to essentialize and devalue as well as to name relations that matter. We'll start by talking about essentialism, specifically stereotyping, as a form of harm that lays waste, and then we'll talk about relations that matter.

Essentialism posits that a set of things have a certain invariable characteristic that makes them what they are and, as such, knowable in advance. One manifestation of essentialism is stereotyping. Stereotypes are "a form of knowledge and identification" that fixes "a social reality [to be] at once an 'other' and yet entirely knowable and visible" (Bhabha 2004, 94, 101). Perhaps you don't know any Inuit, or pedophiles, or rock stars, but stereotypes provide a form of "knowledge" about them anyhow. Think about it: Do you have ideas about Inuit, pedophiles, or rock stars even if you don't know of any, or if you know only one or two? How do you know what you know? How did that group become defined and knowable in the first place? Who did the defining and the knowing, and what is their relationship to the known Other? What do you think was foregrounded and valued in that knowledge, and what aspects were discarded or erased as unessential?

Stereotypes work by stabilizing knowledge about groups that are considered to be beyond the edges of "normal" by the dominant group. You can see this at play when stereotypes contradict one another but that contradiction is not an issue to "knowing" the group. For example, in the United States, Mexicans are stereotyped as being both lazy and taking all the jobs; Native Americans are stereotyped as both uncivilized yet more noble than whites; women are stereotyped as both unintelligent and able to manipulate men with their minds. For a stereotype to hold, outsiders must be more

lazy or more industrious, more or less prone to addiction, less intelligent or more brilliant than whatever is considered "normal." It is not the content of the stereotype that makes them work (although that content causes a lot of harm!) but their deviance from "normal," which defines both the Other *and* normal at the same time (Bhabha 2004; Kristeva 1992).

Thus, stereotyping is a system that categorizes and creates systems of value and worthlessness simultaneously—the domain of discard studies. Most often, stereotyping maintains the status quo of dominant groups by casting Others as deviant. First and perhaps most obvious, one of the core characteristics of stereotypes as they pertain to racism, sexism, ableism, and other "isms" is that they essentialize groups of people as lesser than the norm, allowing the Othered to be less worthy of human rights, less human, more disposable (see the work of writer, critic, and philosopher Sylvia Wynter [2003]; for helpful contextualization and commentary on the significance of Wynter's ideas, see, for example, Erasmus 2020; McKittrick 2015). As such, stereotyping is a foundation of annihilation.

Disposability is one effect of the essentializing power of stereotyping. Resistance to annihilation is at the core of Black Lives Matters: though the movement fights against a range of sources and effects of racism, one organizing premise is that Black people are disproportionately killed by police—three times more likely than whites in the United States (Buehler 2017; DeGue, Fowler, and

Calkins 2016). In another vein, during the COVID-19 pandemic, we can see the "killableness" of people with disabilities and seniors when "quality of life" discussions are used to withhold medical aid from these groups through rationing or outright refusal (Abrams and Abbott 2020; Andrews et al. 2020; Lund and Ayers 2020; Savin and Guidry-Grimes 2020). Likewise, since "no one knows an exact number of missing and murdered Indigenous women, girls and 2SLGBTQQIA people in Canada," it is difficult to quantify the disposability of Indigenous women and girls, but Canada's National Inquiry into Missing and Murdered Indigenous Women and Girls states "while Canadian genocide targets all Indigenous Peoples, Indigenous women, girls and 2SLGBTQQIA people are particularly targeted" (National Inquiry into Missing and Murdered Indigenous Women and Girls n.d., 3). These are all statistics and statements of disposability. Essentialism paves the way.

The paragraph above exhibits something I (Liboiron) don't normally do: use narratives about damage and death to make a case about why something matters. I usually avoid this type of evidentiary thinking for two reasons. First, it sucks to read if you're Black, Indigenous, disabled, and/or 2SLGBTQIA+. I am sorry. Second, using damage-centered narratives to talk about groups is *another form of essentializing* that does not address the systems of power that create stereotypes in the first place, even if they provide strong arguments for justice. Even when "oppressed voices" are invited to speak, to be

part of knowledge production, or to testify on their own terms, bell hooks writes, the invitation is to "only speak from that space in the margin that is a sign of deprivation, a wound, an unfulfilled longing. Only speak your pain" (hooks, 2014, 152; see also Simpson 2007). In "Suspending Damage: A Letter to Communities," Eve Tuck writes about the "hidden costs of a research strategy that frames entire communities as depleted" or disposable (2009, 409) including that over time, "oppression singularly defines a community" (413). These (our) communities become defined by these deficit figures used to make the case for justice, and they (we) begin to internalize them. We start to think of ourselves as broken and in deficit. We take up our essentialization in our pursuit of justice (Yazzie 2021).

Damage-centered knowledge production "operates, even benevolently, from a theory of change that establishes harm or injury in order to receive reparation" (412). That is, sometimes essentialism and stereotypes are leveraged for justice, for good, but this still doesn't address the system of oppression (see Spivak 1988 on "strategic essentialism" as a technique wherein different minority groups present themselves as stereotypes to make the case for justice). Communities still must prove their deficit, harm, or disposability in ways that are legible to dominant powers to get that justice. We highlight this to show that essentialism isn't just the domain of "bad politics" and racists. Essentialism and its modes of discard are also core to certain models of justice.

In chapter 1 we talked about how waste is infrastructure rather than behavior: sorting recyclables in your home is one tiny moment in an overarching recycling system that includes federal regulations and laws, industry lobbies, international markets, and physical infrastructure, among others. So too with essentialism. While there are certainly individuals advancing racism, sexism, ableism and other forms of essentialism through their actions, there is also an infrastructure that makes it so that the same type of people, over and over, are hired less often, are paid less money, are more likely to be murdered by police or domestic partners, are more likely to face violence, homelessness, and poverty. Racism, sexism, ableism, and other essentializations are structural and systematic, not just crappy events.

The Native Youth Sexual Health Network and their allies have been using and developing the term "environmental violence" to talk about structural problems for nearly a decade. Why would a sexual health advocacy group care so much about the environment? According to them, sexual violence and environmental degradation are part of the same structure. They define environmental violence as

> the disproportionate and often devastating impacts that the conscious and deliberate proliferation of environmental toxins and industrial development (including extraction, production, export and release) have on Indigenous women, children and future generations, without regard from States or corporations

> for their severe and ongoing harm. Furthermore, since 2010, NYSHN's work around the term has fostered recognition of the ways it has evolved to not only include the biological reproductive impacts of industry [such as on reproductive health], but also the social impacts. This work has been critical in recent years, as attention paid to the threats of industry in Indigenous communities has tended to focus entirely on the biological health impacts of fracking and mining, or entirely on the sexual violence acts stemming from the male population booms of industry workers' camps. Rarely is attention paid to both types of impacts, with recognition of their intimate connection to the land. (2016)

They argue that violence against women and violence against the environment have the same route: a culture that sees women and land as resources ripe for value extraction. Environmental violence, from pollution to "man camps" (temporary housing for workers, almost exclusively men, typical of extractive industries such as oil and gas [*Oil & Gas Journal* 2013]), is about which forms of life are valued and which are not.

Reproductive Justice

Historian M. Murphy writes that reproductive justice is about "what forms of life are supported to persist, thrive, and alter, and what forms of life are destroyed, injured, and constrained" (2017a, 141–142; see also

Agard-Jones's [2013] work on body burdens). "Reproduction itself is not a good; rather, it is a process of supporting some things and not others" (Murphy 2017a, 142), and as such it is important to "rework reproduction to conceptualize how collectivities persist and redistribute into the future and to query what gets reproduced" (141). Reproductive justice thus fits within a discard studies approach to analyzing how power holds by reproducing some lives and ways of life while others are discarded.

Take for example fish consumption advisories, where people are advised not to eat fish from a certain area because of contamination. Fish advisories are designed to keep people physically healthy by reducing an individual's "body burden" of specific chemicals. But not everyone's forms of life thrive if they don't fish. As environmental health scholar Elizabeth Hoover has shown,

> Indigenous people are concerned about how environmental contamination impacts the reproduction of cultural knowledge. . . . At Akwesasne, community members report a loss of language and culture around subsistence activities like fishing, which have been largely abandoned because of fears of exposure to contaminants. The generational reproduction of culturally informed interpersonal relationships has been affected as much as physical reproduction. . . . For many indigenous communities, to reproduce culturally informed citizens requires a clean environment. (2013, 1648)

Not eating locally caught fish reduces or eliminates certain aspects of language, skills, intergenerational relations, local knowledge, and other elements of ways of life even if it secures individual health. Put another way,

> toxicity is produced by and reproductive of different orders of life. Here, we articulate harm as that which disrupts order and existing relations, while also showing that toxic harm also maintains systems, including those that produce inequity and sacrifice. Then, we turn to toxic politics—struggles pertaining to power focused on which forms of life are strained or extinguished while other forms reproduce and flourish. . . . More than just the contravention of an established order within a system, toxic harm can be understood *as the contravention of order at one scale and the reproduction of order at another*. [For example,] chronic low levels of arsenic in water interrupt the reproduction of fish but maintain the ability of mining companies to store mining tailings in open air mounds. (Liboiron, Tironi, and Calvillo 2018, 335; emphasis in original)

Likewise, fish advisories reproduce health and life at one scale but destroy life and wellness at another. As such, reproductive justice is about *systems* of discarding rather than merely instances—the solution here is not to tweak advisories to allow a little fishing. Government scientists who recommend fish consumption advisories likely don't realize that they are discarding ways of life *in addition* to protecting individual health. The fact that this way of life isn't something they consider or even

know about is also part of reproductive justice. There are many ways to know fish; Western science is only one. Its dominance to the exclusion of all others is a case of reproductive justice, "a process of supporting some things and not others" (Murphy 2017a, 142). The key phrase here is "not others." Western science isn't inherently bad (in fact, the person writing this sentence [Liboiron] is a scientist in the Western tradition!) but it is partial. When one way of knowing becomes so dominant that other ways of knowing fail to make sense or even be considered, you're well into systems of power via discard.

What to Do about Difference?

Systems of power are never complete. Their structures, their universals, their essentialism, their techniques to make some things in place and normal while devaluating and debilitating others are always *working*. They have to constantly maintain and reproduce themselves. Using the term "discard" in discard studies instead of "waste" is meant to help orient the field toward looking carefully at the processes that make waste seem established or categorized.

In this section, we argue that that scholars of discards must cultivate an ethics of attention, appropriateness, and nuance in our theories. For that, we researchers need to pay attention to differences—how they are

created, how they are maintained, and how they matter. At the same time, we must be aware of how using categories of difference often reproduce the powerful systems we are seeking to describe and even change.

Recognizing difference is not enough, though it is the first step. Christina Sharpe contends that recognition can actually serve to recenter power (Sharpe 2016; Coulthard 2014). About the Black Lives Matter protests, she wrote,

> [I'm] seeing the protests recede on the [Twitter] timeline even as thousands of people remain in the streets and subject to all forms of violence. The protests that center Black life are being replaced on the timeline by antiracism. But antiracism is a euphemism here. What is antiracist about recentering whiteness? About shifting the address to white people? Protests are being replaced on the timeline by antiracism and inclusion—both of which are projects of reform [of the dominant system]. (Sharpe 2020)

On the same day Ayana Elizabeth Johnson tweeted,

> I'm getting some truly wild emails. "I am not a black person, but . . ." followed by what they think black people should do. And SO MANY strangers fully expect me to hop on the phone and give FREE advice on how to fix race problems in their orgs. That is not how this works. I am getting so many of these notes, almost entirely from white women ("Saw your article [Johnson 2020] and I would love to hear more on your take on how racial equality ties with our climate crisis :)"). (*Johnson*, June 11, 2020; tweet since deleted)

Johnson is experiencing what Sharpe is critiquing: the recentering of white people and their needs as a reaction to a movement working to center Black people's lives. Recognizing difference *and* wanting to do better reinscribed the dominant system; recognition and intent are necessary but grossly insufficient for changing systems of discard, or even to study them ethically.

When we first introduced these methodological and ethical issues of discard studies in chapter 1, it was in the context of understanding trash and its systems. Now we can look at these methodologies with expansive examples, more nuance, and a clearer sense of the stakes of discard studies.

Defamiliarization is about interrupting the researcher, and later the reader, from using normalized and taken-for-granted modes of perception, reading, or experience. It interrogates "common sense" and everydayness as products of power. This can entail questioning premises and what seems natural, looking at the history of how something became normal, tracking down the origins of truisms or famous quantitative figures, and "zooming out" to consider the wider social, political, and economic systems in a "technical" issue. In the previous chapter, we defamiliarized the academic truism that trash is "matter out of place" by digging into its history, uses, and original text. In this chapter, defamiliarization has involved looking at stereotypes and categories to see the work that they're doing, which models of justice are being used, which lives are being reproduced,

and which are being "fixed" and made to heel. Defamiliarization is a way to interrogate systems for how they make some things seem normal, natural, and banal.

Decentering the coherence or "centeredness" of systems is core to analysis and intervention. Discarding practices are about allowing certain centers to remain dominant in what, how, and where they discard, which makes other systems peripheral. Discard studies can ask decentering questions about dominant systems: What kind of power is at work? Who is benefiting and who is not, and how does that get reproduced over and over? What are "the uneven relations and infrastructure that shape what forms of life are supported to persist, thrive, and alter, and what forms of life are destroyed, injured, and constrained" (Murphy 2017a, 142)? One simple technique for decentering is to listen to the experts and organizations that are being decentered. The white women filling up Ayana Elizabeth Johnson's inbox requesting her to spend time with them show how the dominant system is constantly shuffling things to keep the dominant order, even while people seek to change it. Another technique is to look at examples that are not at the center to see how the center fails at the perimeter, like using the mainstream concept of "consumer choice" and sustainable shopping in Nain. It simply won't work.

Depurifying is an approach that analyzes the discourses, logics, and other techniques that aim to essentialize and control difference. We have shown how

purity is more aggressive than merely maintaining social norms and boundaries. Purity is about eradicating, striking down, destroying, assimilating, and abolishing differences that might threaten the core of the social order: "Purity," writes Mary Douglas, "is the enemy of change, of ambiguity and compromise" (1966, 163). For example, understanding all single-use plastics as one type of thing—they should all be banned!—erases single-use medical waste that we probably don't want to replace with reusables. Or it makes plastic straws into one kind of (evil, useless) object that misses how people with disabilities use them to live and flourish (Wong 2019; Jenks and Obrigner 2020).

These practices are all based in *reflexivity*, the critical examination of usually unexamined and taken-for-granted beliefs, judgments, and practices. Reflexivity is difficult. It's like trying to see the ground you stand on—even if you lift up one foot, the other is still on some ground you can't see. Listening to others, working with others, and ensuring those others include people with expertise and experience outside your own is crucial to reflexivity. In other words, difference matters to reflexivity and good research, including techniques of defamiliarization, decentering, and depurification.

The theory of difference we outlined in this chapter is not just a theory but also a method and an ethic. Difference is both a way to discard and a way to attend to discarding reflexively. It is neither inherently good nor bad, but that doesn't mean difference is neutral: it

always has relationships to dominant systems and thus to power.

In the next chapter we build on this theory, method, and ethic of difference by looking at how to discard *well*. Like difference, discarding is not fundamentally bad or neutral but must always be understood and practiced in relation to power relations and systems. So, there must be ways to discard well that account for and deal with power and thus difference. We invite you to think of some examples *before* you turn the page and then apply techniques of defamiliarization, decentering, and depurification to those ideas. How do those examples not only recognize difference and power but also de- or recenter what is normal, good, or powerful? We offer this challenge because even as experts in the field, we found it exceedingly difficult to think of examples of wasting well; all of our early ideas did not tend to deal with difference well, were part of keeping matter in place, failed to address scale (though they do not have to be "large scale"), and did not always address power relations.

5
Discarding Well

A Theory of Change

> There is no waiting for a better condition.
> —M. Murphy, "Alterlife and Decolonial Chemical Relations" (2017)

Sophia Stamatopoulou-Robbins's book *Waste Siege* (2019), an ethnography of waste and wasting in occupied Palestine, is also a comprehensive text on the complex, interconnected, and multiscalar relationships in waste systems. Stamatopoulou-Robbins interviews waste managers, residents, environmentalists, activists, and waste scavengers about landfills, sewage, second-hand goods, donated food, burning waste, and roadside trash. Despite Palestine being besieged by trash, sewage, and disposable goods that are not and cannot be managed by modern means, she finds that

> the people most affected by waste do not always articulate their dissatisfaction with the impact of waste in environmentalist terms, in contrast to the way other contemporary communities articulate waste-related

> suffering. Nor, more surprisingly still, do the Palestinians featured in this ethnography always orient their energies towards those with the greatest capacity to change their conditions. The premise of this book is that that matters. (2019, 216)

As such, the book highlights how theories of change and constraints of agency are neither straightforward nor agreed upon.

Indeed, *Waste Siege* consistently ties conditions of waste back to colonialism and settler occupation to argue that these forces are the linchpins that come to fundamentally shape waste and wasting practices (see also Akese 2019; Arefin 2019; Hoover 2017; Liboiron 2021). This certainly does not mean that ending occupation in Palestine would inevitably result in modern waste management and clear skies, but would *fundamentally* and dramatically reshape what waste is and how it works in the region. As such, Stamatopoulou-Robbins writes that waste itself is "an environment rather than . . . a foreign object whose salient characteristic is that it has been forcibly and determinately inserted into 'the environment.' . . . [It is] neither a backdrop nor an acute, toxic *cause* of politics. Rather, waste convenes a set of interconnected dilemmas" (2019, 216; emphasis in original). In this spirit, we draw on the insights and theories from previous chapters to think about how to identify potential linchpins and maneuver these interconnected dilemmas.

Neither Stamatopoulou-Robbins nor the other discard studies scholars we've covered in this text appeal to

theories of change like awareness (if only people knew more about waste problems, there would be change) or solutionism (if only we had better, cleaner technologies or management systems there would be change). Instead, we offer a theory of change that attempts to grapple with complex systems characterized by inextricable difference, power dynamics, and complex scales.

In previous chapters we argued that for systems to hold together, to subsist and to persist, they *must* discard. This means that the annihilation of waste is not a theory of change we support. We argue that wasting isn't inherently good or bad, but it *is* related to power, including the ability to classify and eradicate. This chapter builds on earlier conceptualized theories of epistemology and the partiality with which things are known (chapter 1); scale as the relationships that matter (chapter 2); power and how things become normal or abnormal as well as the techniques that maintain them (chapter 3); and difference and how it is a central technique both in discarding and in challenging power structures (chapter 4). We now consider a theory of change pertinent to the field of discard studies that brings all these ideas together into action. If discarding is necessary for all systems to hold together, to subsist and to persist, then differently organized systems are needed to fundamentally alter discarding and their power relations. To organize systems differently means not just critiquing them or tweaking some of their components but also fundamentally changing relationships that matter (relationships of scale).

Our theory of change based in discard studies includes the following characteristics:

1. While systemic change requires the analysis and critique of systems, it doesn't stop with critique. Change is *normative*. It is practiced with the intention of moving from an *is* to an *ought* in the material world.
2. Both the theory of change and the analysis of the systems it rests upon are *specific* to the time, place, infrastructure, and power differentials in a given case. This specificity is about the relationships that matter to a case, or what we call scale (see chapters 1 and 2), as well as difference. Relations are not universal (see chapter 4).
3. It deals with *systems*, not *symptoms*. Two key aspects of systems are the infrastructures and norms that support those systems and make them dominant. Plastic bag litter on a street is a symptom of a system of disposability that produces plastic packaging but also supports recycling that cleans it up: both modern litter and recycling are symptoms of disposability (see chapter 3).
4. It must be *accountable to what is discarded* in the system, including what is necessarily discarded from a reworked or changed system. All systems discard, even "good" ones. Accountability in this sense means recognizing and acknowledging what is discarded as well as holding an obligation or responsibility to that

which has *been* discarded. Another way to think of this is that power relations never go away, even in better versions of the world (see chapter 3).

5. As such, theories of change must learn to practice an *ethic of incommensurability*. As we discuss later in this chapter, an ethic of incommensurability recognizes that there may be no single "good" that can or ought to be achieved through change. It also recognizes that some goods may clash with one another (this is the focus of chapter 5). When such clashes happen (a normal and frequent experience), additional iterations of change need to be pursued.

In thinking through a theory of change premised on discard, we are not talking about eradicating discards altogether (we believe that's impossible). Fundamentally changing discarding means posing the question: "How can we discard *well*?" And what does "well" mean, and to whom?

When we authors have asked this question—how to discard well—of various audiences (including ourselves during brainstorming), composting food waste always comes up. Let's work through this example. First, a theory of change that would support compost as a way of wasting well would need to be normative—move from an *is* to an *ought*. That seems in order. Most advocates for composting are trying to do something good in the face of something that is not being done well or at all, given that organic waste consistently accounts for the

largest share of municipal solid waste and this waste is often incinerated or landfilled (MacBride 2020).

Second, a theory of change must be specific. From our view, composting is usually understood as something to be done to municipal solid waste (MSW) in urban centers. Often, organic waste accounts for the largest share of MSW by weight, so specificity seems to work in our favor. But we also must acknowledge that the organic waste segment of MSW does not scale to the organic waste of industrial systems such as agricultural waste, of which MSW would be a tiny fraction—less than 3 percent (see chapter 1). Our analysis so far has also assumed a MSW system in mostly urban global north contexts. Things would look very different in rural Namibia or western Greenland, where composting might already be the norm, never articulated as a problem to begin with, or have fundamentally different scales and materiality.

Third, a theory of change must deal with systems rather than symptoms. We need to consider how MSW composting might allow agricultural waste to continue unremarked upon and unabated. We need to question what relationships MSW composting does affect. Perhaps municipal landfill fees and volume are reduced in a way that mattered to municipal and NGO accounting. Perhaps the main outcome is that people feel better about waste and their municipality. Maybe composting significantly reduces methane emissions from landfills enough that the scale matters to local climate change emissions. Nonetheless, urban composting from

MSW would likely not impact "food waste" in general, which originates mainly in industrial agricultural spaces. For example, a study in California, where a significant amount of produce is grown for global markets, showed that a third of all food produced was either not harvested or wasted through other means (Baker et al. 2019). Researchers reported that "food loss rates are highly variable and dependent on crop, prices, consumer and buyer preferences, and labor availability" among other systemic issues (2019, 541). The study argues that these are the relationships that matter to the greatest quantities of food waste in supply chains. Much like personal or household recycling, composting does not reduce waste arising upstream in resource extraction or manufacturing. But it might matter in other ways—this is a research question.

Last, points four and five of our theory of change are about recognizing and accounting for what is discarded when systems change. What is wasted when municipalities compost? Perhaps there are job losses from where that waste may have been going. Maybe communities that become the sources for large-scale composting will suffer from health or sensorial effects of the new waste management regime. What about all the plastics in the compost, an inevitable effect of the process, that are spread into soil when the compost is distributed (Cattle, Robinson, and Whatmuff 2020)? Perhaps, as we've indicated, industrial-scale food waste is erased as a significant source of food waste in the public and political

imagination. How will the theory of change account for this and the fact that no type of change will be able to "fix everything"? How are choices of what to fix and not fix ethical, as opposed to merely an issue of feasibility? How are they, in other words, "good" choices and changes? Asking such questions doesn't mean that there isn't a robust theory of change for how composting will change systems rather than address symptoms, but it does mean that what composting looks like would have to be *significantly* different than how it is usually evoked for it to impact waste *systems* and their *power relations*. We fully agree that treating symptoms is often needed and has an effect. But here, we are looking for a theory of change for *systems*, the interlocking infrastructures, norms, and power relations that allow some forms of life to flourish and others to be challenged or erased.

In our theory of change via discard, researchers can work to describe the systems of waste and wasting at work, particularly via techniques of partiality, defamiliarization, denaturalization, decentering, and depurification. Researchers can also pay close attention to issues of scale, difference, and power. This type of research can help define where interventions might have the most impact. Indeed, research "does not inherently lead to sustainable or unsustainable (or equitable or unequitable) outcomes—the outcomes will depend on how, where, when, and by whom the [research] is designed, funded, conducted, and used" (Singh et al. 2021, 2) and simply doing "more research" does not mean issues of power are addressed. Without a theory of

power, research often accidently reproduces the harms it sets out to address (Singh et al. 2021; Liboiron 2021). As such, a key role for research is to evaluate whether interventions are effective in their goals: research "can better serve policy [and other mechanisms for change] when used to evaluate policy [and other] actions already undertaken rather than when used predictively for policy making" (Singh et al. 2021, 4; see also Herrick and Sarewitz 2000). The following case studies both consider the content of how wasting differently might address power dynamics as well as highlight the role of research in this work.

Learning to Discard Well

On September 28, 2020, the city council of St. John's, Newfoundland and Labrador—where we authors live—voted not to increase funding for snow clearing for the coming winter. The city had experienced a massive snowfall event in January 2020, dubbed "Snowmaggeddon," leading to a declaration of a state of emergency that lasted eight days. That winter season was also marked by at least one death of a pedestrian who had been forced to walk in the street because of impassible sidewalks. But snow-filled sidewalks were not unique to that year; for years, walking in the winter in St. John's has been perilous and often results in injuries and deaths. But catalyzed by Snowmaggedon and the clear and consistent neglect of sidewalk users, people

organized under the banner of the Sidewalk Coalition and marched in protest of inequitable mobility in the city for those who do not drive cars (CBC News 2020). Despite the protests and resident surveys that showed a clear majority of respondents in favor of the city spending money on sidewalk snow clearing, the city councilors voted 7 to 2 against a proposal to increase the budget for snow clearing (Eaton 2020). The city's snow-clearing protocol still evaluates sidewalks in terms of their capacity to store snow discarded by plows rather than as places people use for transportation (see figure 5.1).

How is this story about snow clearing in St. John's a discard studies story? Snow is a form of material waste in the context of snow clearing. Indeed, in St. John's snow is dumped on sidewalks and when there's too much snow, it's gathered in dump trucks and deposited in an urban lake. But the question of how to get rid of snow isn't merely a technical problem or a monetary one. It's also bound up in systems that order relationships between urban infrastructure and urban citizens. Focusing on how snow is being discarded offers us, discard studies analysts, a way to investigate how intersecting systems work, what effects those interactions can have, and how differential power relations are in play. It is also an opportunity to posit a way to discard snow *well*. Sidewalk advocates have critiqued the problem and their critique is specific to St. John's, but they have been unable to affect either systems or symptoms.

In another case study of snow clearing almost a decade earlier, officials in the Swedish municipality of Karlskoga

were required to subject city policies to gender analyses. The requirement to use gender to analyze city services signals that there has already been a shift from symptoms to systems, as a new set of norms and set of operations had come into effect, aiming to change relations around gender. The manager in charge of snow clearing on city property even remembered how staff joked about the (supposed) absurdity that snow clearing had anything to do with gender (Include Gender 2014; Perez 2019). Yet when city staff reviewed data available from Swedish hospitals they found that most injuries suffered by pedestrians happened in the winter months and occurred as a consequence of slips on icy surfaces—and that 69 percent of those injured were women (Perez 2019, 31). Snow clearing in Karlskoga had prioritized automobile traffic at destinations that, historically and presently, are male-majority places of work, such as offices and construction sites.

Without intending to do so, Karlskoga city administrators had been managing snow in highly gendered ways. They had fallen into the trap of a particular way of thinking about and managing the urban landscape around them, what feminist writer and activist Caroline Criado Perez (2019) calls "the default male." In this trap, what were actually a highly situated and particular set of experiences—those of traditionally employed, able-bodied, automobile-equipped men—instead became axiomatically synonymous with a universal "people" (see chapter 4). The results, with or without intent, on average made for a physically safer environment for men and a more dangerous one for women.

Based on this gender analysis, Karlskoga's city managers changed how snow was cleared in the municipality. They learned that the city's sidewalks could be made substantially safer merely by changing the order of which parts of the city were cleared first. Instead of beginning the snow clearing at motorways and then moving to sidewalks, the snow-removal schedule was reversed: sidewalks were cleared first, then roads. The change cost nothing yet substantially reduced pedestrian injury rates, which had the additional effect of reducing some health-care costs related to hospital visits from pedestrian slips and falls. What is discarded in this change is not just snow but also the privilege of automobiles and the people (mostly men) that used to experience priority clearing. The city decided this was an acceptable loss (incommensurability) because it aligned with gender equity. They were now discarding well according to their new mandate to take gender differences and power differentials seriously.

Karlskoga's approach is an example of why analysis of systems of difference matters for discard studies (see chapter 4). Analyses that take difference into account are needed to make change happen in a way that can more clearly see what—or whom—is being discarded or externalized and what (or whom) is held as the valued norm. In the case of St. John's, the system of managing snowfall in the city has yet to account for difference (see figure 5.1), or perhaps accounts for it but chooses to privilege automobiles, able-bodied pedestrians, and

Figure 5.1
Snow management planning in St. John's. The sign (*top*) is for snowplows, indicating that they should not push snow beyond the sign. These signs are placed behind sidewalks (*bottom left*), resulting in snow being specifically stored on sidewalks, which make them impassible in both the winter and spring (*bottom right*).
Source: Photos by Max Liboiron and Josh Lepawsky.

likely men. As we write this, winter approaches and the municipality of St. John's has erected snow clearing directions for plows on signs that read, "do not push snow beyond this point," into the grassy parklet behind the sign. The sign marks the main sidewalk as the proper place to deposit snow cleared from the street behind the photographer.

Learning to discard well can be assisted by asking a set of questions: in a particular situation or case, what goods are sought and what bads are fought? And how are "good" and "bad" set up as such? Where is the unevenness in the system? Who do they benefit, and who do they burden? What or whom are these values accountable to, and how? Thinking about discarding well results in a range of possibilities, not necessarily completely knowable in advance, which can be arrayed toward more just and equitable ends than whatever the current arrangement may be.

Incommensurability

The final consideration in our framework to support discarding well is an ethic of incommensurability: there may be no single and universal "good" that can or ought to be achieved through change, no totally completed and finished project that addresses everything (Tuck and Yang 2012; see also chapter 4). It also recognizes that some goods may clash with one another (Mol

2002, 46). When such clashes happen (a normal and frequent experience), additional iterations of change need to be pursued.

If politics refers to struggles pertaining to power and power is about the creation and maintenance of unevennesses of various kinds, then arranging elements of a structure one way rather than another involves struggles over how unevenesses of various kinds will be built into systems. Some of that uneveness will be deliberate and some won't; some of the unevenness may be acceptable to some but not to others. In the case of Karlskoga reevaluating snow-clearing practices, power relations that previously upheld the dominance of able-bodied, car-equipped men were reordered such that the power to move about the city was enhanced for different people. But did these changes lead to universally good outcomes? You probably won't be shocked to learn that the short answer is "no."

Able-bodied women experienced the enhanced safety benefits in Karlskoga more than others in different circumstances. People who ride wheelchairs may not be as well accommodated as foot-powered pedestrians by these snow-clearing practices, for instance. The different snow-clearing practices also didn't do anything to change systems of gender roles that still have women doing most of the unpaid care work (e.g., childcare, eldercare, grocery shopping) and doing a lot of that work on foot. Changing snow-clearing practices doesn't operate at those scales (see chapter 2).

Other harmful relations in snow clearing also remain unaddressed, such as plastic pollution that becomes concentrated in snow cleared from roads, which also has a gender component. When tires abrade against the road, little bits of tire come off, called "tire dust," which constitutes a significant source of microplastics in the environment. One recent study in Germany calculated that tire wear added between 67,000 and 88,000 tons of microplastics per year to roadway surface water and to roadside soils with another 4,000–5,000 tons of microplastics to the air (Baensch-Baltruschat et al. 2021). Moreover, "Tire wear particles may present a significant risk to organisms, since they contain potentially ecotoxic chemical components such as mineral oils, plasticizers, softeners, [and other industrial chemicals] that may leach out" (Parker et al. 2020, 9). Many of these "ecotoxic chemical components" are endocrine-disrupting chemicals (EDCs) akin to the BPA on receipts mentioned in chapter 1, which disproportionately affect the health of women and the very young (WHO 2013). We're back to a gendered analysis of the harms of snow clearing.

Plastic monitoring in St. John's has shown that tire dust is a major component of urban waterway systems and that these microplastics tend to accumulate in snow, which is often dumped in Quidi Vidi Lake; this in turn drains to the ocean where many locals catch fish for food (CLEAR n.d.). Regardless of whether sidewalks are cleared first (or not at all in the case of St. John's),

snow-clearing practices add to the ways in which tire-derived microplastics move into and through environments and how those burdens are unevenly distributed.

You may be thinking, "But we can't address everything!" That is our point. When you aim to change a system to waste better, some parts of that system will still be reproduced (Hale 2006). Systems never operate in isolation and are always intersecting, bringing gender relations, plastic pollution, and snow clearing together. Even though all things cannot be "fixed" does not mean that changemakers are not accountable to them. One of our guidelines for wasting well is to be *accountable to what is discarded* in the system, including what is necessarily discarded from a reworked or changed system. You can't fix everything, but you still need to be accountable to those things. Accountability in this sense means recognizing and acknowledging what is discarded and then holding an obligation or responsibility to that which has been discarded.

Incommensurability is not only a way to talk about competing goods and unanticipated bads. It is also a way to identify and make changes in relation to power dynamics (see chapter 3). The Karlskoga snow clearing example was an example of a systematic change toward gender equity that resulted in wasting well. But tire dust presents a reverse case, where wasting well may not result in systems change. Most solutions that attempt to deal with tire dust tend to involve capturing microplastics (e.g., the Tyre Collective, a device that "dusts

off" tires as they're used). That version of wasting differently does not meet any of our criteria for wasting well because it leaves existing systems untouched and deals with the issue as a technical problem (symptoms rather than systems). The emerging problem of tire dust is bringing attention to wider systems that tire dust is just exacerbating, such as unchecked highway pollution (WWT 2017), the toxicity of everyday materials such as the carbon black in tires (a suspected human carcinogen [Kuempel and Sorahan 2010]), and the power of the fossil fuel and petrochemical industries in transportation planning, urban design, and the political economy more generally. A significant change in tire dust, or wasting well when it comes to tire microplastics, would require a significant change in these systems. In short, wasting well changes systems, and changing systems can result in wasting well. The theory of change works in both directions.

In chapter 3, we introduced a theory of power drawing on Mary Douglas's concept of "matter out of place" as that which threatens dominant systems. Tire dust has the potential to cause this kind of threat. In 2020, as tire dust emerges as a new type of pollution, "Cardno ChemRisk, a U.S.-based consultancy that has worked with companies facing chemical exposure litigation . . . is spearheading the tyre industry's response to the microplastics threat" (Brock and Geddie 2020), including coauthoring research that counters academic publications showing tire dust as a significant form of microplastic

pollution and environmental harm. This type of coordinated denial indicates that tire dust represents a threat to the tire industry and its partners. To paraphrase Douglas (1966), where there is dirt, there is a challenge to the system.

How might we use tire dust as an opportunity to waste well, to move from the current state of tire dust and its systems to a better system that scales to the systems that matter in the production of these microplastics rather than symptoms? How would interventions be accountable to existing and new power relations as well as uneven burdens using an ethic of incommensurability? This is not a rhetorical question. We'd like you to take a moment to think about it. If you were part of a team dedicated to wasting well in transportation systems and given the problem of tire dust, what might you need to consider? What scales would you work at? What systems would that include (e.g., Quinn 2018)? One of the analytical commitments of discard studies, in our view, is to analyze what seem like impossible-to-overcome problems. Rather than starting with the idea of feasibility based on existing systems and power structures, we can instead ask, "What *specifically* makes this problem seem impossible to solve, and how do we change *that* so the problem is no longer impossible?" (See chapter 1 for some techniques for thinking about naturalized phenomena and how those phenomena might be made otherwise.) Consider for a moment what that might look like.

Making New Worlds by Discarding

Changing systems to discard well will not only put an end to certain materials, flows, practices, and structures but also make new ones. We planned for the final case of this chapter to be about mushroom harvesting in Tŝilhqot'in Territory. The Tŝilhqot'in National Government created a new policy based on difference that changed which groups are burdened with environmental extraction and which benefit; more important this change in unevenness was done according to the value of Indigenous sovereignty, the right of Indigenous people to govern Indigenous territory. But before we examined that case study in depth, we had to follow our own guidelines for wasting well by being accountable to discard and power in our own research. We found an immediate clash of "goods." We wanted to tell a story of sovereignty over land, but the entitlement of outside researchers (us) to tell that story on our own terms for our own goals is counter to Indigenous sovereignty.

Both of us authors work at Memorial University, where a new policy called Research Impacting Indigenous Groups (RIIG), spearheaded by one of the authors (Liboiron), seeks to scale relations of discard and power in research to the level of the entire university. Linda Tuhiwai Smith writes that "the word 'research' is probably one of the dirtiest words in the indigenous world's vocabulary. . . . The ways in which scientific research is implicated in the worst excesses of colonialism remains

a powerful remembered history of many of the world's colonized peoples" and continues today (Smith 2012, 1). Tuck and Yang write that "one major colonial task of social science research that has emerged is to pose as voicebox, ventriloquist, interpreter of subaltern [Indigenous] voice" or story, but only in terms of Indigenous pain or deficit rather than knowledge on Indigenous terms (2014, 225). Linda Tuhiwai Smith writes, "Research [in Indigenous conversations] was talked about both in terms of its absolute worthlessness to us, the indigenous world, and its absolute usefulness to those who wielded it as an instrument, it told us things already known, suggested things that would not work, and made careers for people who already had jobs" (Smith 2012, 3). In discard studies terms, research is a form of reproductive injustice, where academic ways of living, knowing, and doing flourish and are rewarded while Indigenous ways of living, knowing, and doing are valued only as fodder for that academic flourishing (see chapter 4). The RIIG policy was a response to these ongoing relationships in and around Memorial University, which is not a unique case in academia.

Liboiron drew on discard studies theory to collaboratively build the policy. In simple terms, RIIG is a consent policy, where research can only move forward once the Indigenous group the research affects has given collective consent to proceed (Memorial University, 2020). This consent must occur at the beginning of a research project's planning phase, before the research questions,

design, and methods are solidified so that Indigenous groups can affect the project through alteration or outright refusal. Discard studies scholar Grace Akese has encountered this phenomenon of creating harm by attempting to do good research in her fieldwork on electronic waste in Agbogbloshie, Ghana. Even though she is from Ghana, when she approached people working with scraps, they told her,

> "This is a place of business. You people think we are here for you, eh? You come here all the time taking pictures. Every single day, someone wants to know something. Let me tell you; we are tired."
>
> "We see you people [researchers] all the time. You come here and then write bad things about us. You bring your white people to come and see us. You take pictures of the boys there. Who permitted you to come here?" (2019, 95)

Akese and the RIIG policy make the case for refusal, the ability of overresearched groups to discard some research and support other research on their own terms. Refusal disenfranchises academic entitlement to Indigenous and other people's lands, cultures, knowledge, labor, stories, and lifeworlds. Following Tuck and Yang, we understand that "refusal, and stances of refusal in research, are attempts to place limits on conquest and the colonization of knowledge by marking what is off limits, what is not up for grabs or discussion, what is sacred, and what can't be known" (2014, 225)—that is, discarding well.

There are two further ways the RIIG policy draws on discard studies. First, rather than choosing awareness as an intervention into extractive research norms, which may have addressed symptoms, RIIG is a policy—infrastructure. It is an intervention that better (though not perfectly) scales to the relationships that matter, tying the policy to formal ethics, funding, promotion, and compliance systems. Indeed, the acronym "RIIG" was chosen because it evoked infrastructure, the ropes, pulleys, and hooks that direct a ship's sails and allow it to speed along or stop dead in the water. Second, following Akese (2019) and others (Tuck and Yang 2014; Simpson 2007, 2016; Zahara 2016), the RIIG policy understands refusal as an *affirmation* as much as a loss—the affirmation of Indigenous sovereignty. As Mary Douglas has pointed out, condemning one set of things affirms others (1966).

Additionally, the policy implementation process considered ways to be *accountable* to what was being discarded. Memorial University's Office of Research created infrastructural support such as funded opportunities for researchers to build the relationships with Indigenous groups that consent requires, templates for what written consent and refusal might look like, and a peer advisory group made up of researchers who had good relationships with Indigenous groups through their research who could help others achieve the same type of relationship or redirect them if they weren't on a good path.

For this book, we sought to take up the spirit of RIIG's regime of discarding well by requesting permission to write about the Tŝilhqot'in National Government's policy. At the time of this writing, we have almost but not quite obtained permission, as it requires many conversations and getting to know one another before consent is truly informed. While consent might be obtained by the time we revise this chapter, we have instead not assumed that we will get what we want and have discarded that case study. Instead, we wrote about RIIG (see Akese 2019 for how she also did this with her fieldwork).

We hope that ending on this example highlights how discarding well and other normative strands of discard studies is equally about the content of research and the methodologies and ways research itself is always already part of systems of discard. Defamiliarization, denaturalization, decentering, and depurifying should be brought to bear on approaches to research in addition to our objects of study (Akese 2019; Liboiron 2021; Zahara 2016). Turning our analytical tools of scale, relationality, power, and difference onto research practices themselves is likewise crucial for a type of research that not only seeks to identify and critique systems of waste and wasting but also enacts them in our research activities. We authors believe that discard studies methodologies are well placed to discard well—we have the tools!—and we look forward to learning more about the research wastes of fellow discard studies scholars.

Some Moves for Discard Studies

This is not *the* rubric for discard studies (see chapter 4 on universalism and its ethical problems), but *a* rubric forwarded by us, the authors. We believe that it describes some key parts of the interdisciplinary field of discard studies (though it certainly does not describe all parts) and hope it is useful to researchers in the area.

Techniques of Discard Studies (Chapter 1)

1. Defamiliarization: Methods that interrupt the reader and researcher from using normalized and taken-for-granted modes of perception, reading, knowing, or experience, interrupting popular, intuitive, expected, and common narratives about waste and wasting by using empirical research and cases from a range of disciplines.
2. Denaturalization: Because waste practices are specific to a time, place, culture, and system rather than an inherent "natural" characteristic of humans, when cultural or political specificity is universalized or naturalized, it must be shown to be contextual, place-based, situated, and historically specific.
3. Decentering: Because waste and wasting practices maintain centers and their dominance in what, how, and where peripheries are externalized and discarded, discard studies is dedicated to decentering dominant systems to see how they become

powerful and what peripheries they depend on for that dominance.

4. Depurifying: In its use here, purification refers to an aggressive and even violent technique of power where a dominant order is maintained to the exclusion (or annihilation) of others. Difference is a key concept within purification and thus of its opposite, depurification.

Key Theories for Discard Studies (Chapters 2–5)

1. Scale: A theory of relationality. Scale is about the relationships that matter within a phenomenon. In waste and discard studies, theorizing scale as *relationships that matter* within a situated context has ramifications for action—from policy to management to activism—and research so that relationships and forces in a system that cause discarding can be accurately recognized, described, and addressed.
2. Matter out of place: A theory of power. Dirt, or matter out of place, rarely describes waste or pollution. Instead, dirt describes a dominant system of order and threats against that order and discarding as a technique to maintain that power. Dirt or matter out of place is that which threatens the dominant order and so must be devalued, controlled, or annihilated.
3. Reproductive justice: A theory of difference. Classifying, defining, sorting, and ranking things by

value and other forms of differentiation are key to discarding *as well as* resisting against dominant systems of discard. When difference meets power, discarding is about "what forms of life are supported to persist, thrive, and alter, and what forms of life are destroyed, injured, and constrained" (Murphy 2017a, 141–142). Wasting life and discarding well both use these concepts to support or reduce different forms of life.

4. Incommensurability: A theory of uneven ethics. In complex systems, no measure of "good" or "bad" will be universal. Since all systems discard, forms of good will also have their externalities, their "bads." An ethic of incommensurability recognizes these differences without conflating them, smoothing them over, or abandoning them (Tuck and Yang 2012). Instead, we discard studies researchers are accountable to what is externalized.

Characteristics of a Theory of Change via Discard, or Wasting Well (Chapter 5)

1. Normativity, or the intention of moving from an *is* to an *ought,* and identifying the good sought and the bads fought.
2. Specificity to the time, place, infrastructure, power differentials, and other relations in a given case, including an attention to scale and difference.
3. Dealing with systems, not symptoms.

4. Accountability to what is discarded in the system, including what is necessarily discarded from a reworked or changed system.
5. An ethic of incommensurability and the recognition that there may be no single "good" that can or ought to be achieved.

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Based on the Summers Gender Balance Assessment Tool (Summers 2020), this reference list is approximately 33.5 percent women authored. From 2018 to 2019, women were 41 percent of academic teaching staff at Canadian universities and roughly half the global population. Citations and references are another place of reproductive justice and discard in research: they act as "*screening techniques*: how certain bodies take up spaces by screening out the existence of others," making it seem as though research is conducted mainly by men, which becomes naturalized (Ahmed 2013; see also Anderson and Christen 2019; Mott and Cockayne 2017; Stefancic and Delgado 1995). A reference list is an excellent place to put discard studies theory into discard studies research practices (see chapter 5). Indeed, in early copy edits of this book by MIT Press, all Tweets we cited were removed from the reference list. Not coincidently, all were sources of public intellectualism by Black women. Even here, on the often unread back pages of a manuscript about power and discard, these systems are at work.

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