ECOCENE

CAPPADOCIA JOURNAL OF ENVIRONMENTAL HUMANITIES

Volume 5/Issue 1/June 2024

General Articles

Weighed Down: Informal Recycling as Shaped by Multiple Layers of Heaviness

Olivia Loots
Post-doctoral Research Fellow
Nelson Mandela University, South Africa
olivialoots123@gmail.com
ORCID: 0000-0003-3603-6059

Loots, Olivia. 2024. "Weighed Down: Informal Recycling as Shaped by Multiple Layers of Heaviness." *Ecocene: Cappadocia Journal of Environmental Humanities* 5, no. 1 (June): 1–20. https://doi.org/10.46863/ecocene.104.

Research Article/ Received: 29.01.2024 /Accepted: 28.04.2024

Weighed Down: Informal Recycling as Shaped by Multiple Layers of Heaviness

by Olivia Loots

●

Abstract

The proliferation of waste is a global problem. In South Africa, only 10% of all waste materials are recycled. Of those, almost 90% are recycled in the informal sector. This article draws on data collected through participant observation and 21 qualitative interviews with participants who work in the informal recycling sector as buyers, sellers, and sorters in the coastal city of Gqeberha in South Africa. Using the concept of 'weight' (as physical, economic, and emotional component in the workspace), I explore the 'material-discursive' dimensions that shape the participants' experiences and examine the implications for their bodies and livelihoods. I argue that by recognizing the multifaceted nature of weight and addressing its distinct meanings within the context of informal recycling, it is possible to develop a more holistic view of environmental justice. This view considers the harsh, lived experiences of marginalized humans who live closest to, rely most on, or are disproportionally burdened by, wasted materials.

Keywords: Informal recycling, waste work, South Africa, weight, material-discursive, environmental justice

●

About the Author

Olivia Loots is a postdoctoral research fellow at the Centre for the Advancement of Non-Racialism and Democracy at Nelson Mandela University, South Africa. As an interdisciplinary Environmental Humanities researcher her work focuses on new materialist readings of the intersection between social and environmental justice. She received her PhD in Visual Studies in 2022 from the University of Pretoria, where she also completed her undergraduate studies. In her spare time Olivia works as a graphic design consultant specialising in editorial design, illustration, and data visualisation.

Weighed Down: Informal Recycling as Shaped by Multiple Layers Of Heaviness

Olivia Loots

Waste: A Heavy Topic

Near the end of a 9-minute film entitled *Do objects come with responsibility?* (2013), American conceptual artist Mary Mattingly walks over the Bayonne Bridge in New York. She is pulling a large boulder-like bundle, precariously positioned on a four-wheeled platform. Its heaviness is visible as she is slowly making her way across the bridge, first pushing it, then walking alongside it trying to stabilize it, then pulling it (Figure 1). During the final stretch, she narrates: "I just wanted to do something with clarity about what literally weighs me down." She is referring to the objects in the bundle held together with yellow twine: notebooks, clothes, computers, books, and other objects in her life. Mattingly makes a poignant statement about the weight of physical objects, proliferated by capitalism and consumerist practices. She makes a conscious attempt to confront herself with not only the emotional weight, but also the physical weight and materiality of her personal possessions.

Figure 1: Mary Mattingly, *Do objects come with responsibility?* 2013. Short film. Screen shot by the author.

The visual in Figure 1 resembles a common sight in South African cities: replace the artist with a waste reclaimer and the objects being pulled with recyclable materials (Figure 2). Waste reclaimers—also called waste pickers[1]—in the informal sector are responsible for recycling up to 90% of the 10% of recycled materials in the country (Godfrey 2021). After collecting plastics, cardboards, aluminum cans, and other recyclable materials found in public spaces or on landfill sites, they travel through cities on their way to have these materials weighed and sold for a meagre income. Structural unemployment in South Africa since the 1970s has created a stark socio-economic landscape that pushes individuals into inhumane forms of labor, such as waste picking, as a desperate means of survival (Van der Westhuizen 2016, 13). High levels of unemployment exacerbate the vulnerability of marginalized communities and perpetuate a cycle of inequality, exploitation, and deprivation.

Figure 2: Informal street waste reclaimers in South Africa. 2020. Photographed by Siphiwe Sibeko (Reuters, 2020).

I agree with Davis and Turpin (2015, 4) that "it is necessary to engage with and encounter art" to think through environmental issues. I expand in this paper on Mattingly's critique by focusing on the lives of waste reclaimers. They not only carry the physical burden of capitalism's recyclable waste objects, but also actively depend on its weight to make a living in unjust and toxic environments.

This is done by referring to participant observation sessions and qualitative interviews with participants who work at different levels of the recycling value chain

(waste reclaimers, buy-back center managers, and buy-back center sorters)[2] in the South African coastal city of Gqeberha (formerly Port Elizabeth) in the Eastern Cape Province. Participants referred to variegated yet intermingled experiences related to weight and heaviness, including the physical weight of materials, weighing scales, heavy versus light metal types, bodily strength and exertion, anxiety and psychological burden, heavy bags as an indication of income, emotional heaviness or lightness, a heavy chest as indicative of respiratory problems or other health issues, heavy workloads with time constraints, and heavy weather conditions as a challenge in their daily labor.

Weight as a sensory experience can represent many abstract concepts (Zhao, He, and Zhang 2016, 2). More specifically, "weight" is a polysemic word with multiple meanings that are "interconnected in some way" and commonly closely tied to everyday experiences (Hu 2023, 3). Each meaning typically holds a fundamental sense alongside derivative connotations. as society changes, more interconnected meanings emerge (3). "Weight" also serves as a metaphor, which encompasses the rhetorical transfer of meaning from one term to another, usually understood as supplemental (Flynn 2015, 1; Hung et al. 2017).

Thinking about the various interlinking meanings of weight provides access to understanding informal recycling as a "material-discursive" (Barad 2003)[3] network encompassing physical, emotional, financial, social, and environmental aspects. "Material-discursive," as theorized by Karen Barad (2003), is closely associated with new materialist thought, wherein matter and meaning emerge simultaneously and coalesce in a mutually influential manner (neither takes precedence over the other). It refers to the interconnectedness of material practices and discourses, acknowledging that the physical weight of recyclable materials is intimately tied to the social and cultural discourses surrounding waste and work.

This paper aims to answer the question: Using weight as point of departure, what material-discursive dimensions shape the experiences of informal recyclers, and what are the implications for their bodies and livelihoods? I focus on three aspects: physical weight, economic weight, and emotional weight. In all three instances, I highlight both the material and discursive aspects at play in participants' expression of their experiences.

The study's aim was to obtain an in-depth understanding of the experiences of the participants and the relationships that develop between buyers (buy-back center managers), sellers (landfill and street waste reclaimers), and sorters in the process of exchanging recyclable materials and money. Analyzing participants' experiences of weight by foregrounding their own words allowed them an opportunity to speak back[4]

at the dominant discourses on waste that assume their lives and labor to be as disposable as the objects they collect, and to emphasize the gravitas of their role and experiences.

I argue that by recognizing the multifaceted nature of heaviness and addressing its distinct meanings within the context of informal recycling, it is possible to develop a more holistic view of environmental justice that considers the harsh lived experiences of those who live closest to wasted objects. This article also serves as a reminder to theorists of the new materialisms that an "ethics of relationality" (Braidotti 2006) means not overemphasizing matter, but rather remaining cautious of the interplay between the physical *and* the conceptual.

This article is made up of four sections. I first provide a brief overview of where this study fits into the environmental humanities, especially in relation to theories of waste and environmental justice. I then provide a short overview of the methodological approaches of the research project from which this paper flows. In the third section of the paper, I analyze material-discursive aspects of informal recycling by drawing on weight as a prominent organizing factor. This section focuses on the imbricating forms of weight informal recyclers are confronted with, namely physical, economic, and emotional. In the fourth and final section, I conclude with the implications of the study's findings and suggest avenues for further exploration.

Theoretical Framework

It is not uncommon for theorists to frame environmental degradation as a burden to be carried. Richard Streitmatter-Tran and Vi Le (2015, 115), for example, argue that with the introduction of the "Anthropocene" as a new, unofficial geological epoch, humans are "asked to shoulder the weight of being our own epoch-makers:"

> This weight is not just to be measured; it must also be felt, and endured. Artistic and historical research, contextualized within the Anthropocene epoch, faces the challenge of addressing how we are to live with our own impact. As the epoch-making weight becomes too great to be quantified, we also need to [...] begin constructing configurations that might escape the prefiguration of our own actions and impact.

Two issues arise here. First, the concept of the "Anthropocene" can easily be read as universalist. That is, that all humans everywhere are responsible for the mess "we" make without sufficiently considering the role of (predominantly white, western, and male) capitalism. Narratives about the origins of the Anthropocene all too often "construct a monolithic, post-racial 'we' and singular temporality of being, instead of differentiating geologic life" (Yusoff 2018, 64). Theorists argue that the term simply reinforces the anthropocentric worldviews that led to the ecological catastrophe in the first place,

while equally reinforcing the technocratic ideals of humans who are then supposedly able to "fix" this mess (Emmett and Nye 2017, 17).[5]

Second, the increased concern about environmental degradation generally marks the exposure of white liberal communities (Yusoff 2018, 11). Within the context of this study, the role of consumption patterns, the implications of the waste produced in the process, and strategies such as recycling to mitigate this effect, is at the forefront. Waste theory remains most predominantly informed by Mary Douglas's *Purity and Danger* (1966) and Michael Thompson's *Rubbish Theory* (1979). Although not explicitly about waste, Douglas's cornerstone work explores the relation between pure bodies and civilized social systems, and between "dirty" matter and disease. Thompson's book expands on these ideas by theorizing value distributions and social hierarchies around the central theme of waste.

Both of these seminal texts are largely premised on humans' assumed physical and ideological distance from waste. Affluent consumers can be "one [geographical and emotional] step removed from the consequences of [their] waste" (Scanlan 2004, 127) by "deny[ing] its existence" (Thompson 1979, 20). This distancing rhetoric and the consumers' dissociation of their waste continues to be relied on heavily in text produced in the 21st century in the Global North (see Bell 2019). Lucy Bell (2019, 108) further contends that some studies (such as those by Min'an (2011) and Scanlan (2004)) produced in the Global South—where millions of humans work with waste and are exposed to its effects—*also* reproduce this distancing rhetoric.

Theories of waste have a "knock-on effect on the kinds of processes they acknowledge" (Bell 2019, 109): if the assumed "safe" distance between humans and waste continue to be foregrounded, while the voices of those who live in close proximity to waste continue to be silenced, then the status quo will be left intact.[6] Foregrounding the informal recycling sector and the experiences of workers physically weighed down by the planet's wasted objects "fundamentally disrupts the naturalized relationship between humans and the modern ontology of waste" (Samson 2020, 63).

The environmental humanities offer the opportunity to critically analyze such complex interactions between human societies, the environment, and the unequal distribution of environmental burdens and benefits. As Robert Emmett and David Nye note, it is "impossible to separate environmental analysis from discussions of industrialization and Western imperialism, which together accelerated resource extraction, consumption, pollution, population growth, species extinction, and global warming" (2017, 2–3). While this is a view commonly shared by theorists in the field, there is still a need for increased representation within the environmental humanities.

This shift would foreground the perspectives of marginalized communities who commonly bear the brunt of environmental injustices as the unfair distribution of environmental harms continues to disproportionately affect marginalized communities.

To foreground the entanglement of material and discursive components of waste work and weight, I employ the new materialisms. I elaborate on this in the third section of this paper. What follows next is a broad overview of the methodological approach of the study from which this paper flows.

Methodological Note

This paper draws on qualitative interviews conducted with 21 participants who work at different levels of the recycling value chain, namely waste sellers, waste buyers, and waste sorters.[7] Over the course of 2023, I also partook in six participant observation sessions at six locations in Gqeberha, South Africa, where people work with recyclable materials. During my visits, I took notes of how humans moved around the space, how their bodies reacted under the weight of materials, and how they interacted with objects.

Before data collection commenced, I contacted the managers of these spaces, which consisted of three buy-back centers of various sizes, one recycling swap shop, one informal mobile buyer, and one scrap metal buy-back center. The reconnaissance phase, during which I explained the scope of the study, ensured trust and transparency between me and the managers. I reached participants through their affiliation with at least one of these six spaces.[8] Participants were between 22 and 72 years old and included eight waste reclaimers (a combination of street and landfill workers), eight buy-back center managers, and five sorters who work at buy-back centers. Under certain circumstances, some managers and sorters also acted as reclaimers in their "free" time, which added a further layer of complexity to these relations.

All transcriptions and fieldnotes were uploaded onto the qualitative data analysis program, Atlas.ti. This allowed me to rigorously identify codes and themes with which to dissect "complex phenomena hidden in unstructured data" (Friese 2019). The data were coded and grouped to assist in identifying themes that most accurately reflected the interviews and observations. The semi-structured interview included questions on participants' work routine, engagement with materials, work-related challenges and achievements, access to support, experiences of discrimination, and understanding of their societal role. The interviews and site visit observations inform the following section in which I discuss the important organizing factor of weight in the informal recycling landscape.

The Weight of Waste Work

Entangled Layers of Weight

Weight influences the diverse material-discursive experiences and challenges faced by informal recyclers. Materially, the actual mass of recyclables not only poses physical strain to recyclers' health and bodies, but also directly influences their economic transactions. The value assigned to different types of waste are all shaped by discourses that extend beyond the physical properties of materials. For example, the decisions of buy-back centers (acting as middle-men) regarding how to weigh and pay for materials are influenced by societal norms and economic considerations.

Weight in this context also encompasses the emotional burden of economic vulnerability, job insecurity, inadequate access to resources, societal stigmas, cultural attitudes, policies, and the challenges associated with handling varying quantities of often hazardous waste materials. Waste work is also associated with dangerous, unhealthy work environments and adverse weather conditions such as heavy winds (Gqeberha is colloquially known in South Africa as the "Windy City"). The material aspect of the weight of waste is thus intertwined with broader discursive, social, economic, and environmental structures that dictate how waste is perceived, treated, moved, weighed, valued, and compensated. The complex interplay of these diverse dimensions of weight significantly impacts the overall well-being, health, and economic agency of informal recyclers.

Against the backdrop of these precarious circumstances, the participants easily switched between these different, interconnected meanings of weight. In what follows, I analyze 1) the physical impact of weight (hard labor as strain on the human body); 2) the economic impact of weight (heavy bags symbolizing higher income); and 3) the emotional impact of weight (stress, danger, and unstable circumstances that lead to exhaustion).[9] In each case, I provide a material-discursive analysis to show how these three layers of weight imbricate with and inform one another.

Physical Weight

The most common reference to weight was when participants spoke about the physical strength required to recycle. To illustrate this point, I refer to the managers at a buy-back center that was established in Motherwell, the biggest township in Gqeberha, in 1998. The buy-back center has always been managed by the same three women, now all over 60 years of age. When asking the oldest manager of the three, Neliswa (72),[10] about the most challenging aspect of her work, she responded:

> Hm, we do struggle on the recycle side as you have to fill up the big bags and it's difficult to lift them up. Like yesterday, because we were lifting them up and putting them inside the van. But we were saved[11] by these children. But because we are very much used to this kind of work, we do not have any challenge as we work hand-in-hand as the mothers.

By "these children" she referred to her and her two elderly colleagues' grandsons who often assist at the buy-back center with various tasks. Her colleague, Nozizwe (62), also commented on young men's strength that is beneficial to their business. When asked if she had future plans for the buy-back center, she responded that she had appointed "eight [strong] men to help us." She would task these men to collect recyclables and bring them to the buy-back center, "then we'll have *lots* of recycle. And then I sort, I sort. Because the men is quicker than me." Nozizwe's perspective underscores the gendered division of labor also within recycling, where physical strength is attributed to men who can lift heavy bags with more ease, while women excel in the task of sorting. These two perspectives point to the elderly women's awareness of the physical benefit of strength to efficiently complete informal recycling tasks with less physical exertion. Their awareness leads to two influencing factors, namely gender and age.

In many industries that require physical exertion, work is commonly divided into "light" and "heavy," a "division that often corresponds formally or informally to gender" (Messing et al. 1998, 451). This organization is often based in part on the gendered perceptions by managers and workers of workers, their abilities, and the characteristics of the work to be done. This forms part of a long history of gendered labor, where women are commonly seen as less capable of conducting the same physical tasks as men. Gender in waste reclaiming also has financial and other implications. Research by Wilson et al. (2022, 354), for example, states that women working at two major landfills in Johannesburg earned 22% less per month than the men (one reason stated was that men collected more "masculine" materials such as metals and electronics, whereas women collected materials such as "unwieldy" plastics and papers).

Literature often states that waste reclaiming has little barriers to entry (Gutberlet and Uddin 2017; Viljoen 2014; Viljoen, Schenck, and Blaauw 2012), but physical ability complicates this assumption (Schenck et al. 2019a, 12). Waste reclaiming requires an able body, but it can still lead to injury, especially when it involves pushing, pulling, or lifting heavy loads (Schenck et al. 2019a, 12). For example, two elderly male participants, Doug (61) and John (62), expressed the challenge of lifting physical weight. The informal nature of the sector makes it a viable option for older workers, despite the physically demanding nature of the work. Job scarcity, economic responsibilities, and structural

unemployment in South Africa because of global neoliberal structures force many older individuals to work in the informal sector, while there is a complex interplay between age, gender, and able-bodiedness. The combinations of these exacerbate informal recyclers' harsh experiences.

Siphokazi (37), a younger woman worker at a scrap metal buy-back center, stated that she enjoyed the physical labor. She emphasized that the physical movement involved in recycling felt "like I'm gyming" because "I carry heavy stuff" and that she saw herself as the "kind of person who likes [being] fit, so it's easy for me to just work here." In this case, the objects' weight, and the physical labor inherent in her work are perceived as something that positively engaged Siphokazi as it aligned with the benefits of physical exercise. This view also reflects a prevalent neoliberal ideology regarding the governance of the human body: health is a commodity, and the body becomes a form of human capital within a market-driven framework.

Siphokazi's account actively challenges the focus of many feminist approaches that poses women as vulnerable and disadvantaged in relation to men. These views risk being interpreted as adhering to an essentialist and ahistorical understanding of women's identity as women "are not a homogeneous group" (Flores Garrido 2023, 36). Women historically occupied a subordinate position compared to men, and while this pattern remains largely unchanged under capitalism, it does not imply that the dynamics and processes through which the category of women is shaped in relation to work have remained unchanged (Flores Garrido 2023, 36). That said, the societal group that is still most affected by the adverse division of the neoliberal labor market are Black women (Van der Westhuizen 2016, 29). The persistent discrimination against women in the work environment cannot be ignored. The physical heaviness of recyclable materials entangles with many discursive factors surrounding, but not limited to, gender and sexism, age, ableism, and precarious work shaped by neoliberal capitalist systems.

Economic Weight

> *Extract from interview #12:*
> *[Ronel, a street waste reclaimer, is holding a long, thin piece of thick fabric in her hands. Attached to it one can see three blocks of metal].*
> *Interviewer: Where did you get this?*
> *Ronel: I picked it up. [...] The thing is a, like a... a gym thing [Holds it up in her hands].*
> *Interviewer: Yes, I see. I think they use it for deep-sea diving?*
> *Ronel [Engrossed by the object]: Feel [Hands it over to me]. Do you feel how heavy it is?*
> *Interview: Yes, it's heavy [Chuckles].*
> *Ronel: Do you feel that? [Takes the object from me, stands up and walks to the buyer.]*

As can be seen from the interview extract above, Ronel (32) shared that she had acquired a piece of equipment made from a heavy metal. At first, she seemed fascinated by its physical properties, and I noted that it was most likely a weighted belt used in deep-sea diving (a common touristic activity in coastal cities). With closer inspection, it became clear that Ronel was in fact not particularly interested in its weight *as such*: what she was doing was trying to establish its weight to estimate its potential *monetary* value. This exchange underscores how the weight of the reclaimed object becomes a tangible factor signaling possible financial income.

Recycling is a "volume business" (Schenck et al. 2018, 658). Earnings are a function of the weight of materials collected, the hours worked, the intensity of work during those hours, the amount of waste available that is suitable for recycling, and global fluctuations in the commodity prices of the collected materials (Schenck et al. 2018, 657; Viljoen 2014). The relation between these factors that led to payment culminates in the use of a scale to weigh the materials presented. Historically the evolution of weighing scales has always been inextricably linked to economic evolution and standardization of exchange values (Büttner and Renn, 2016, 757).

During the Neolithic Revolution (10 000 BCE) humankind used containers similarly sized (such as a hollowed-out coconut) to determine the quantity of crops exchangeable in the marketplace (Euler and Weisser 2013). Between 3000 and 5000 BCE, the equal-armed beam balance came into use in various places across the globe and is viewed as the first "sophisticated" measuring scale: to determine an object's weight, it was placed on one arm of the instrument, and its weight was compensated for by placing standardized balance weights on the other arm. While weighing technology was originally introduced to facilitate the exchange of goods, it soon led to philosophical reflections on the process and equipment involved in weighing. This use of equilibrium went "hand-in-hand with conceptual transformations" and gave rise to "an abstract and quantitative concept of weight, distinguished from other bodily characteristics such as bulk or material quality" (Büttner and Renn 2016, 757). Balance became applicable "not just to weights and weighing, but also to other abstract values such as justice" (Büttner and Renn 2016, 759).[12] Despite embodying the concept of justice, scales play a crucial role in a work environment associated with unjust conditions, highlighting the irony of their symbolic representation.

Bruce (30), a Zimbabwean street waste reclaimer, came to South Africa in 2019 in search of employment opportunities. I asked how much money he made in a week. He emphasized the crucial link between the weight of materials and potential income: "Maybe I'm gonna get a 100 rand [ZAR]... 200 [...] for five, six [big recycling bags]". Bruce

pointed out the importance of weighing the materials, stating, "if there's no weight there… ah, you can't get money" so "that [bag] must weigh." This direct correlation between the weight of materials and the financial outcome for individuals such as Bruce foregrounds the potential value of recyclables. Waste reclaimers usually start recycling informally as a last resort to make money (Schenck et al. 2018; Schenck et al. 2019b), and despite hard work, commonly find themselves in a highly precarious financial situation.[13] Therefore, the link between potential financial income and the weight of the materials they collect is a crucial framing factor in the participants' perception of weight, where heavier loads represent a potential increase in income.[14]

The material-discursive perspective in the discussion on economic weight recognizes the inseparable relationship between the physical characteristics of waste materials and the broader discourses and economic structures that govern their treatment and valuation in the context of local and global recycling.

Emotional Weight

> *Notes from participant observation session #6 (Scrap metal buy-back center)*
> *Babalwa (a sorter at the center, participant #17) shuffles from her shack (one of five on the property) towards one of the piles of unsorted metals, where another sorter is working. She and her three children live on the property, where her workplace is located. Two children (around four years old? Not sure if both hers?)—the same who played around the room during our interview—appear in the shack's doorway and one shouts a question to her in isiXhosa. She shouts a reply. Turns back to the pile. Lets out a sigh. Starts picking up a piece of metal to sort, then another, throws both to her right on a smaller (less defined) pile.*

Evident in the palpable sigh and her weary demeanor, Babalwa's (35) actions include navigating the demands of her work as a sorter and her children, suggesting the multifaceted struggles she faces daily. This is not an uncommon occurrence: I have seen how the precarious nature of informal recycling, a largely stressful working environment, financial precarity, and the added burden of caring for dependents [15] can cause participants emotional strain. These social stresses and responsibilities have an impact on their well-being.

Some participants almost seamlessly transitioned from speaking about the physical weight of objects to the emotional weight associated with poverty, stress, and constant laborious work. To illustrate this, I refer to a discussion with Solly (41), a manager of a newly established buy-back center in Walmer Township. Solly carried a sense of pride for establishing his own informal business that could mean potential income for him and members in his community. The buy-back center was situated in his yard, and during all

my visits, big storage bags were crammed together in the front and at the back of his home, waiting to be collected by a recycling center.

He explained that he and his employees were "busy moving some of the stuff out [from the backyard to the front for collection], because it is full-full-full-full". I asked about the logistics of moving the bags around the house, adding, "It must be so heavy?". In this instance, he immediately agreed: "*Yes*. It's heavy. It's heavy." He exhaled deeply, looked down, paused for a few seconds, and then looked up at me: "It's heavy work." In acknowledging materials' physical demands, Solly transitioned to its intertwined mental and emotional exertion, and the multiple layers of the weight of the labor coalesced. This example highlights some discursive implications of the concept of "weight," and metaphorical language in particular.

The metaphor of weight is commonly used to express emotional states, where happiness is on the positive end of the valence spectrum, and sadness and depression on the negative end (Hamdi 2015; Hartmann et al. 2023; Hung et al. 2017).[16] Theorists, especially in the fields of neuroscience, psychology, and linguistics, study the links between physical weight and emotional interpretations of weight. For example, Zhao, He, and Zhang (2016, 2) state that a road may feel more difficult to walk when one is carrying heavy objects. Similarly, people tend to feel that more time and energy are required to move a heavy object than a light object. Thus, people such as Solly and the other workers, "unconsciously associate heavy objects with negative emotion, such as 'hardship'" (Zhao, He, and Zhang 2016, 2).

This aligns with 'conceptual metaphor theory' as theorized by George Lakoff and Mark Johnson (1980). Taking Solly as an example, the theory proposes that he uses concrete, familiar, and tangible concepts (a source domain: physical weight) to understand and express abstract concepts (a target domain: psychological pain). In this coupling, metaphor emerges as more than ornamental language. Using linguistic evidence, for example, Lakoff and Johnson (1980, 235) held that metaphor is a matter of conceptual structure that "involves all the natural dimensions of our [embodied] experience, including aspects of our sense experiences," such as color, shape, texture, sound, and weight. Orientational metaphors, which give a concept a spatial orientation, show how metaphorical language structures the way we move and live in the world as they have arisen from a physical experience. When thinking in terms of a new materialist perspective, metaphors could be conceived as a material process of mediation occurring through bodily experiences and therefore bound up with matter *and* meaning (Jue 2020, 81). Acknowledging these complex interactions with matter might allow for new materialisms' insights on materiality and meaning to be carried further (Flynn 2015, 2).

It highlights how matter and meaning are not separate elements but an entanglement of "being, knowing and doing" (Barad 2007, 3).

I also spoke to Funeka (51), the manager of a recycling swap shop,[17] about her work experience: "Sometimes you [...] come to work and then you got that heaviness. [...] Then comes a [reclaimer], then you just [short pause] talk. And talk and talk and talk and talk. We laugh. We cry. We... we talk. Then everything is out." She described the process of conversing as a cathartic release or "something that [comes] off [my] shoulder," highlighting the significance of social interaction in alleviating emotional burdens.

To illustrate the interconnectedness of bodily experiences and "that heaviness," Hartmann et al.'s (2023) study makes use of "Bodily Sensation Mapping" as a tool for assessing emotions. One of the study's aims was to establish whether bodily sensations of valence (happiness and sadness on the two sides of the spectrum relating to pleasant and unpleasant feelings) are also part of "emotion knowledge." Instead of reporting feelings on a scale, study participants were provided with a whole-body silhouette onto which they drew their feelings (that is, the felt changes in bodily activity in response to certain emotions). To measure valence, the researchers considered how people commonly described positive and negative feelings in words, namely by means of the metaphor of weight (see for example Hamdi 2015; Hung et al. 2017). They found that participants systematically reported valence-related sensations of bodily lightness for positive emotions (happiness, love, pride), and sensations of bodily heaviness in response to negative emotions (anger, fear, sadness, depression).

Such an "automatic coupling between weight and valence"—as was also expressed by Funeka (51)—affirms that "the use of weight may not simply reflect figurative language" (Hartmann et al. 2023, 62). The metaphorical relationship between weight and valence might be derived from bodily experiences (Hartmann et al. 2023, 63; Zhao, He, and Zhang 2016). Taking note of such research that foregrounds the body's registration of how it is being altered by the environment, and the accompanying emotional state whenever one becomes aware of those changes in one's bodily state, opens myriad possibilities for studying material-discursive entanglements, also when considering those most affected by the physical weight of objects.[18]

The specific intra-actions of the material and discursive components of weight as discussed in these three sections, provide insight into informal recyclers' experiences in the world. In a different context, weight will assemble and manifest itself in a different way and would lead to other meanings.

Conclusion

The concept of weight impacts informal recyclers' experiences and bodies in intermingling conceptual and material ways. Understanding the metaphorical connections between waste work and weight illuminates the psychological, emotional, and physical aspects of workers' lives and labor. Beyond informal recycling as a marginalized and poorly paying job, weight intersects also with environmental injustice in many other industries through its correlation with occupational exposures, contributing to disparities in working conditions that disproportionately impact excluded communities. Workers in not only waste management but also mining, manufacturing, and chemical production, among others, handle physically heavy materials that involve manual exertion. The physical demands of such jobs contribute to health issues among workers, especially when there are insufficient resources or incentives for ensuring their safety and well-being (Burgard and Lin 2013, 8).

These hardships are compounded by the fact that these workers are already facing socio-economic challenges and ongoing discrimination. Rectifying environmental injustice in the workplace necessitates comprehensive policies addressing both occupational and environmental factors, encompassing the enforcement of regulations for safe working conditions, promotion of fair practices, and consideration of broader socio-economic determinants influencing unequal exposure to environmental risks (Peckham et al. 2017, 22–23). In an age of rapid environmental decline and accompanying questions of value, livelihood, and dignity, all these matters deserve more, and more nuanced, attention in future research.

In her film *Do objects come with responsibility*?, Mattingly articulates a profound awareness of the literal and metaphorical burdens imposed by consumerist practices. Her reflection on the heaviness of objects resonated far beyond her own narrative, informing a conversation on a reality in South African cities, where waste reclaimers navigate the weight of recyclable materials, a weight that is not only physical but intrinsically linked to their livelihoods and emotional well-being. In the context of Gqeberha, where qualitative interviews and participant observation illustrated the multifaceted dimensions of weight in the recycling value chain, participants' experiences revealed a complex interplay of physical, economic, and emotional heaviness. This study deepens our understanding of the material-discursive dynamics shaping waste work, drawing attention to the interconnected threads of weight that weave through both artistic expression and the lived experiences of those who bear the burden of the world's waste.

Notes

[1] In South Africa, many terms are employed, but "waste picker" remains the most common despite concerns about its condescending tone (Samson 2020, 60). I use "waste reclaimer" to foreground that this type of work involves finding value from discarded materials.

[2] For the sake of clarity, I refer to these three interlinked groups of participants as "informal recyclers."

[3] The material-discursive approach draws on contributions from fields such as the new materialisms, science and technology studies, cultural studies, and feminist theory. Some influential scholars include Karen Barad (through her work on "relationality" and "agential realism") and Donna Haraway (especially through her concept of "material-semiotic" practises). Such theorists, also closely associated with new materialist and post-humanist thought, challenge dualisms and emphasize the entanglement of material and discursive elements in shaping understandings of the world. Material-discursive is hyphenated to show that the "two concepts are closely related and intimately entwined" (Bozalek and Kuby 2022, 82).

[4]The new materialisms reject theorizing voice as a stable or essential "thing." Sociologist Rachelle Chadwick (2020, 16) argues that "voice" is not transparent, individual, or singular phenomenon. Building on Nancy Tuana's (2008, 188) concept of "viscous porosity" as a way of thinking about the relational processes of becoming in which subjects, events, and phenomena are not stable essences but "constituted out of relationality," she shifts towards a conceptualisation of *voicing* as an embodied, socio-material, sensual, and relational process. Voice becomes both a matter of language and bodies, speech and silence, presence and absence. Precisely this ambiguity is the key to the "radical potentiality of voice" (Chadwick 2020, 2).

[5] To date there is no consensus regarding whether "Anthropocene" is an apt description for the current era.

[6] Annually, thousands of deaths occur due to landfill "waste slides." While such events have occurred in Western countries (such as the United States of America in 1988, Spain in 1996, and Greece in 2003), it is "only in developing countries that they have led to major disasters" (Lavigne et al. 2014, 1). In 2000 in the Philippines, the deadliest waste slide to date killed 278 people. In Indonesia in 2005 143 people were killed and 71 houses were buried as waste collapsed after heavy rainfalls (Lavigne et al. 2014). Other examples include Guatemala (2008, more than 50 people), China (2015, 73 people), Ethiopia (2017, 46 people), Mozambique (2018, 16 people), and multiple events and hundreds of deaths and relocations over the years in India (Lavigne et al. 2014; Yang et al. 2017). This emphasizes the issue's global nature and the need for comprehensive, yet place-specific solutions. The dangers associated with sites of waste, compounded by inadequate safety measures and the sheer mass of accumulated refuse, are a direct cause of waste being conceptually and physically pushed towards poor communities.

[7] Further along the value chain are large recycling facilities and manufacturers that make use of recycled materials to produce goods (Schenck et al. 2018, 658).

[8] I used a combination of convenience and snowball sampling. The first involved interviewing any willing volunteers who met the criteria (being affiliated with the site as a buyer, seller, or sorter and being older than 18) who were present at the site during my visits. In some cases, I used snowball sampling by asking participants to refer me to other possible participants. I also relied on referrals from the managers. Because of the referrals and introduction by a middleman, I was well-received, which further highlighted the important role of contextualizing one's role

and position within the network one is studying. Participants signed a consent form, had the opportunity to ask questions, and withdraw at any stage.

[9] As mentioned, the participants referred to other forms of weight as well, but for the sake of clarity and explanatory force, I concentrated on these three aspects.

[10] All pseudonyms used were self-selected by participants. Quotations are verbatim.

[11] The feeling of being "saved" also points to the alleviation of an emotional weight Neliswa (72) experienced when receiving physical assistance from family members.

[12] Scales in the 21st century remain integral to a diverse range of industries to ensure accuracy, safety, and efficiency (Ogunbiyi, Mohammed, and Adesina 2023, 59), including shipping and logistics, aviation, construction, manufacturing, healthcare, retail, laboratories, fitness, mining, agriculture, and waste management at large (Schwartz 2000).

[13] There are significant differences in earnings due to variations in recyclables available in the geographic areas within which they work and the prices of the buy-back centres they frequent (Godfrey 2021, 142). Based on the South African minimum wage of ZAR 25.42 per hour (Government Gazette 2023), a 40-hour work week would generate a minimum income of ZAR 4067.20 per month, or around 220 USD. All monthly estimations provided by participants and in other research (see Godfrey 2021; Schenck et al. 2019b; Yu, Blaauw, and Schenck 2020) are below the minimum wage.

[14] The conversation about weight also linked to three other matters that impact informal recyclers' income, namely skills development, transportation, and time management. First, Bruce explained that his improved knowledge of recycling over time (he learnt how to "[pack] cardboard nicely" to make it "heavy-heavy," whereas he previously "just put it [in the bag] and there was no weight") earns him more money. Second, Bruce uses a trolley similar to the one in Figure 2, which further enables him to collect more and heavier materials. Viljoen, Blaauw, and Schenck (2019a, 4) found that street waste reclaimers who use a trolley earned almost 50% more than reclaimers using bags, wheelbarrows, or their heads (ZAR 60 instead of the median income of ZAR 40). For informal recyclers, adequate transportation symbolizes livelihood as it allows for heavier and more loads, which translates to income. Third, working efficiently and longer hours allows one to collect more materials. As another participant, Vukile, put it: "if you lose the time, it's a kilogram that you lose… and when you lose the kilogram, then you lose the money" (51).

[15] The participants in this study reported having an average of three dependants relying on their (contingent) income, which correlates with what Schenck et al. (2019b, 87) have found. Neliswa (72) had the most dependents, namely eight.

[16] This is common across many languages (Hamdi 2015; Zhao, He, and Zhang 2016). It also applies to the three languages in which the interviews were conducted (15 in English, one in isiXhosa, two in English and isiXhosa, and three in Afrikaans).

[17] Recycling swop shops compensate sellers for recyclable materials in materials goods (such as food stocks, clothes, and toiletries) instead of money.

[18] Another pertinent example of emotional weight was Vukile's recollection of witnessing a death of a waste reclaimer at Arlington, the biggest landfill site in the Eastern Cape. He recounted: "[Long pause] The other lady…doesn't see the bulldozer. Imagine what happened to that lady… [Claps hands together]. Boom. Then we cry, all of us [Imitates screams], then the bulldozer stops.

But that lady [Snaps fingers. Pause]. That was *terrible*" (51). This incident not only underscores the heaviness of witnessing traumatic accidents in the workplace, but also serves as a constant reminder to be "awake" because "you're working in a dangerous environment" (51). Experiences such as these highlight many other material-discursive relations between layers of weight, such as mourning, dangerous and heavy equipment, and constant psychological stress.

References

Barad, Karen. 2003. "Post-humanist Performativity: Toward an Understanding of How Matter Comes to Matter." *Signs: Journal of Women in Culture and Society*, 28(3): 801–31.

Bell, Lucy. 2019. "Place, People and Processes in Waste Theory: A Global South Critique." *Cultural Studies*, 33(1): 98–121.

Bozalek, Vivienne, and Candace R. Kuby. 2022. "Material-discursive." In *A Glossary for Doing Postqualitative, New Materialist and Critical Posthumanist Research Across Disciplines*, edited by Karin Murris, 82–84. London: Routledge.

Braidotti, Rosi. 2006. *Transpositions: On Nomadic Ethics*. Cambridge: Polity Press.

Büttner, Jochen, and Jürgen Renn. 2016. "The Early History of Weighing Technology from the Perspective of a Theory of Innovation." *eTopoi Journal for Ancient Studies* 6: 757–76.

Chadwick, Rachelle. 2020. "Theorizing Voice: Toward Working *Otherwise* with Voices." *Qualitative Research*, 21(1): 1–26.

Davis, Heather, and Etienne Turpin, eds. 2015. *Art in the Anthropocene: Encounters Among Aesthetics, Politics, Environments and Epistemologies*. London: Open Humanities Press.

Douglas, Mary. 1966. *Purity and Danger: An Analysis of Concepts of Pollution and Taboo*. London: Routledge.

Emmett, Robert, and David Nye. 2017. *The Environmental Humanities: A Critical Introduction*. Cambridge: MIT Press.

Euler, Wolfgang, and Heinz Weisser. 2013. "History of Scales: Part 3 and 4." *OIML Bulletin*. 53(4): 11–17.

Flores Garrido, Natalia. 2023. "Experiences of Precarity, Practices of Resistance and Political Imagination among Feminists from Mexico and South Africa." PhD diss., Nelson Mandela University, Department of Sociology.

Flynn, Niall. 2015. "Performativity and Metaphor in New Materialist Media Theory." *Networking Knowledge*, 9(1): 1–13.

Friese, Susanne. 2019. *Qualitative Data Analysis with ATLAS.Ti*. London: SAGE.

Godfrey, Linda. 2021. "Quantifying Economic Activity in the Informal Recycling Sector in South Africa." *South African Journal of Science*, 117(9/10), Sept/Oct: 138–44.

Government Gazette Republic of South Africa. 2023. "National Minimum Wage Act (9/2018): Amendment of National Minimum Wages contained in Schedule 1 and Schedule 2 of the Act." Accessed 21 February, 2023. https://www.labourwise.co.za/wp-content/uploads/2023/02/GG48094-21022023-National-Minimum-Wage-Act.pdf

Gutberlet, Jutta, and Sayed M.N. Uddin. 2017. "Household Waste and Health Risks Affecting Waste Pickers and The Environment in Low-And Middle-Income Countries." *Int. J. Occup. Environ. Health*, 23: 299–310.

Hamdi, Sondes. 2015. "A Cognitive Study of Happiness Metaphors in English, Tunisian Arabic and Spanish." *Arab World English Journal*, 6(1): 132–43.

Hartmann, Matthias, Bigna Lenggenhager, and Kurt Stocker. 2023. "Happiness Feels Light and Sadness Feels Heavy: Introducing Valence-Related Bodily Sensation Maps of Emotions." *Psychological Research* 87: 59–83.

Hu, Ping. 2023. "A Semantic Study of "Heavy" and Its Corresponding Chinese Word "Zhong"." *Forum for Linguistic Studies*, 5(2), 1642: 1–15.

Hung Yu-chen, Xue Zheng, Jamie Carlson, and Laura M. Giurge. 2017. "The Weight of the Saddened Soul: The Bidirectionality between Physical Heaviness and Sadness and Its Implications for Sensory Marketing." *Journal of Marketing Management*, 33(11–12): 917–41.

Jue, Melody. 2020. *Wild Blue Media: Thinking through Seawater*. Durham: Duke University Press.

Lakoff, George, and Mark Johnson. 1980. *Metaphors We Live By*. Chicago: University of Chicago Press.

Lavigne Franch, Patrick Wassmer, Christopher Gomez, Thimoty A. Davies, Danang Sri Hadmoko, T Yan W M Iskandarsyah, J. C. Gaillard, et al. 2014. "The 21 February 2005, Catastrophic Waste Avalanche at Leuwigajah Dumpsite, Bandung, Indonesia." *Geoenvironmental Disasters* 1(10): 1–12.

Mattingly, Mary. *Do Objects Come with Responsibility*? 2013. https://art21.org/watch/new-york-close-up/mary-mattingly-owns-up/

Messing, Karen, Céline Chatigny, and Julie Courville. 1998." 'Light' and 'Heavy' Work in The Housekeeping Service of a Hospital." *Applied Ergonomics* 29(6): 451–59.

Min'an, Wang., 2011. "On Rubbish." *Theory, Culture & Society*, 28 (7–8), 340–53.

Ogunbiyi, Olalekan, Oloruntoba C. Mohammed, and Lambe M. Adesina. 2023. "Development of an Automated Electronic Estimation Weighing Scale." *ABUAD Journal of Engineering Research and Development*, 6(1): 59–66.

Peckham, Trevor, Marissa G. Baker, Janice E. Camp, Joel D. Kaufman, and Noah S. Seixas, 2017. "Creating a Future for Occupational Health." *Annals of Work Exposures and Health*, 61(1): 3–15.

Reuters. 2020. "South Africa's Itinerant Waste Pickers Lose Livelihood in Lockdown." https://www.reuters.com/article/health-coronavirus-safrica-ragpickers/south-africas-itinerant-wastepickers-lose-livelihood-in-lockdown-idINKCN22517Z/

Richard Streitmatter-Tran, and Vi Le. 2015. "The Cerumen Strata: From Figures to Configurations." In *Art in the Anthropocene: Encounters Among Aesthetics, Politics, Environments and Epistemologies*, edited by Davis Heather and Etienne Turpin, 109–16. London: Open Humanities Press.

Samson, Melanie. 2020. "Whose Frontier is it anyway? Reclaimer 'Integration' and the Battle over Johannesburg's Waste-based Commodity Frontier." *Capitalism Nature Socialism* 31(4): 60–75.

Scanlan, John. 2004. *On Garbage*. London: Reaktion Books.

Schenck, Catherina J., Nik Theodore, Phillip Blaauw, Elizabeth C. Swart, and Jacoba M. M. Viljoen. 2018. "The N2 Scrap Collectors: Assessing the Viability of Informal Recycling using the Sustainable Livelihoods Framework." *Community Development Journal* 53(4): 656–74.

Schenck, Catherina J., Phillip Blaauw, Jacoba M. M. Viljoen, and Elizabeth C. Swart. 2019a. "Exploring the Potential Health Risks Faced by Waste Pickers on Landfills in South Africa: A Socio-Ecological Perspective." *International Journal of Environmental Research and Public Health*, *16*(11): 1–21.

Schenck, Catherina J., Phillip Blaauw, Elizabeth C. Swart, Jacoba M.M. Viljoen, and Naome Mudavanhu. 2019b. "The Management of South Africa's Landfills and Waste Pickers on Them: Impacting Lives and Livelihoods." *Development South Africa*, 36(1): 80–98.

Schwartz, Roman. 2000. "Automatic Weighing: Principles, Applications and Developments." *Proceedings of XVI IMEKO World Congress (Vienna)* September: 259–67.

Thompson, Michael. 1979. *Rubbish Theory: The Creation and Destruction of Value*. Oxford: Oxford University Press.

Tuana, Nancy. 2008. "Viscous Porosity: Witnessing Katrina." In *Material Feminisms*, edited by Stacy Alaimo and Susan Hekman, 188–213. Bloomington: Indiana University Press.

Van der Westhuizen, Christi. 2016. "Setting The Scene: Public Works Employment from the RDP to the NDP." In *Who Cares: South Africa's Expanded Public Works Programme in the Social Sector and Its Impact on Women*, edited by Palesa Parenzee and Dorcas Budlender, 11–30. Cape Town: Böll Stiftung.

Viljoen, Jacoba M. M. 2014. "Economic and Social Aspects of Street Waste Pickers in South Africa," PhD Diss., University of Johannesburg, South Africa.

Viljoen, Jacoba, Catherina Schenck, and Phillip Blaauw. 2012. "The Role and Linkages of Buy Back Centres in The Recycling Industry: Pretoria and Bloemfontein (South Africa)." *Acta Commercii* 12 (1): 1–12.

Viljoen, Kotie, Derick Blaauw, and Rinie Schenck. 2018. "'Sometimes You don't Make Enough to Buy Food': An Analysis of South African Street Waste Pickers' Income." *Journal of Economic and Financial Sciences* 11: 1–13.

Wilson, Kerry S., Tahira Kootbodien, Félix Made, Simbulele Mdleleni, Nonhlanhla Tlotleng, Vusi Ntlebi, and Nisha Naicker. 2022. "Men and Women Waste Pickers on Landfills in Johannesburg, South Africa: Divergence in Health, and Socioeconomic Status." *International Archives of Occupational and Environmental Health* 95: 351–63.

Yang Hong, Junqiang Xia, Julian R. Thompson, and Roger Flower. 2017. "Urban Construction and Demolition Waste and Landfill Failure in Shenzhen, China." *Waste Management* 63: 393–96.

Yu, Derick, Phillip Blaauw, and Rinie Schenck. 2020. "Waste Pickers in Informal Self-Employment: Over-worked and on the Breadline." *Development Southern Africa* 37(6): 971–96.

Yusoff, Kathryn. 2018. *A Billion Black Anthropocenes or None*. Minneapolis: University of Minnesota Press.

Zhao, Xueru, Xianyou He, and Wei Zhang. 2016. "A Heavy Heart: The Association between Weight and Emotional Words." *Frontiers in Psychology* 7 (June): 1–9.