Agonizing Assemblages: The Slow Violence of Garbage in the Yemeni Civil War

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MAXWELL FENTON, FEB 14 2021

In 2018, European Union investigators described the ongoing Yemeni Civil War (2014-) as the "worst humanitarian crisis in the world," owing to the breadth of entirely man-made horrors which have been visited upon that country (Gordejuela and Wunder, 2018). Saudi-perpetrated war crimes, famine, outbreaks of infectious disease, terrorism, and intractable ethnic and religious conflict have all played their part in the wholesale destruction of Yemen. Amid the erosion of governance, shattering of Yemen's political system, and extreme violence waged by several different sides in the conflict, so too has its waste management system collapsed. Though prior to the outbreak of conflict Yemen had struggled considerably with waste management, the war has totally decimated garbage collection (Weir, 2019). Outside of Yemen's capital, Sana'a, a huge hill of garbage leaches unseparated toxic waste and sewage into the city's rapidly drying water supply (Browning, 2016). Garbage rots in the streets and entire families pick among it for edible food (Trew, 2019). Even so, the garbage crisis has frequently taken a backseat to Yemen's host of other issues even as it has worsened them, owing to the relative lack of attention given to waste management in humanitarian assistance (Weir, 2019). Where previous analyses of the war have focused on the dynamics between human actors, few have analysed the crisis in terms of the effects of waste on the trajectory of Yemen's continuing agony. None have attempted a critical analysis of the role of waste. The overriding preoccupation with a strictly human agency has led to a paucity of analysis as far as non-human actants are concerned, particularly in terms of their impact on the trajectory of conflicts.

Given this lack of attention, this paper offers a critical examination of the Yemeni Civil War through its current garbage crisis. New materialism — and in particular, the work of Jane Bennett — offers an effective lens through which to analyse the political contours of Yemen's garbage crisis given its understanding of the political roles played by non-human bodies. Like all mere "things," waste is alive with a "vital materiality" that can never be disposed of (Bennett, 2010: 6). With an understanding of the power of forces like waste in mind, what is the role of non-human waste actants in shaping the humanitarian crisis of the Yemeni Civil War? Borrowing from this new materialist thinking, I argue that Yemen's garbage crisis has shaped the trajectory of the conflict by generating powerful and constitutive assemblages of garbage, toxic waste, and the "lively streams" of chemicals and disease that seep from them. Among the host of effects emergent from Yemen's assemblages of garbage actants is an environment of "slow violence" inflicted on the Yemeni people — the gradual and incremental violence of a long-term poisoning rather than immediate, kinetic force (Nixon, 2013). Substantial ecological and humanitarian effects, ranging from cholera outbreaks to environmental pollution to chemical exposure have all resulted from the ongoing garbage crisis, further indicating the thing-power of waste and its agentic trajectories in generating substantial political effects.

A Framework for Waste

In *Vibrant Matter*, Jane Bennett (2010) calls for a broader understanding of agency, one that acknowledges the active and substantial participation of non-human actants in events and politics. She argues there is a "vital materiality" imbued in both human and non-human bodies, the ability of these objects to "act as quasi agents or forces with trajectories, propensities, or tendencies of their own" (Bennett, 2010: viii). What at first glance appear to be mere "things," like garbage, are imbued with a "vibrant" materiality of "thing-power: the curious ability of inanimate things to animate, to act, to produce effects dramatic and subtle," extant alongside human agency (Bennett, 2010: 6,

viii). These non-human actants take on agentic properties when arranged as "assemblages" — that is, "ad hoc groupings of diverse elements…living, throbbing confederations…not governed by any central head…an open-ended collective," generating "emergent properties" able to cause an event only by acting in concert with other bodies (Bennett, 2010: 23-24). Agency thus emerges as the provenance of distributive, agentic assemblages of both human and non-human actants (Bennett, 2010: 21).

Among the vibrant matter that Bennett discusses is garbage — indeed, Bennett (2010: viii) rhetorically asks how we might view consumption if humanity thought of waste not as dead rubbish but as a growing pile of vital material. Like all other bodies, waste objects have a vital materiality that runs across bodies and takes on agentic properties when acting in concert with each other. She cites work on the "garbage hills" of New Jersey as indicative of the assembled thing-power of non-human waste actants, as waste "continues its activities even as a discarded or unwanted commodity" (Bennett, 2010: 6). Waste takes on substantial, agentic properties when it joins broader assemblages of other non-human bodies. Contrary to its seeming deadness, assemblages of non-human actants like waste is "vibrant" alongside human actors by affecting the broader course of events in a wide variety of ways (Bennett, 2010).

Following Bennett's claims, "new materialist" thinkers have analysed the agentic and "vibrant" properties of garbage in a number of different political and geographic scenarios. Fredericks (2014) examines garbage dumps in Senegal, and how the vital materiality present in assemblages of garbage structures complex relationships of citizenship and economic exchange. Acuto (2014: 345) argues that while garbage may seem a mundane subject, "the mundane cosmopolitics of everyday life" are largely structured by international politics' relationship to waste disposal. Cherrier et al. (2018) propose a new understanding of waste actants explicitly following Bennett: that the category of "waste" must be reconsidered as having a vital materiality to better develop an anti-consumerist, "circular" economy of repairing and repurposing. But none of these studies analyse the agentic properties of garbage in a warzone, let alone the case of Yemen, where assemblages of waste wreak havoc on vulnerable populations.

The Agency of Yemen's Garbage

On the outskirts of Sana'a sits a 10-million-ton hill of waste that existed before the war, a massive dump for the city of three million people (Browning, 2016). A recycling facility was largely able to treat or remove toxic and medical waste before its disposal, but after the site was destroyed in a bombing campaign by Saudi-backed forces against Houthi rebels in 2015, all waste that ends up in the Sana'a city dumps goes untreated, and mingles with other waste items in a great medley of filth (Browning, 2016). In Taez, garbage lines the streets, and livestock feeds off any edible material before it is burned in massive fires (Borbon, 2019). In the besieged port city of Hodeidah, poor families are reduced to picking through increasingly scarce trash piles for food (Trew, 2019). All across rural and urban Yemen, great uncollected masses of garbage choke city streets, emanate toxic chemicals, and are makeshift sources of food for an increasingly food insecure population (Weir, 2019).

Following Bennett's (2010) description of the power of non-human actants, Yemen's dumps are a series of massive assemblages, made up of a wide variety of materials and concepts. The disparate parts of a wartime Yemeni garbage dump run the gamut from material to idealised: plain garbage, raw sewage, medical waste, livestock, volatile organic chemicals, fires, disease pathogens, discarded food, destroyed buildings, failures of municipal waste policy, and the competing ideologies amid protracted civil conflict that engendered the worsening of the garbage crisis. It includes objects which have been cast from the social body as "waste" as well as the ideological forces which structure social life (Edensor, 2005). Like all assemblages, the ad hoc diversity of parts in these collections of garbage do not have a singular leading force behind them, but are "alive" with the power of non-human actants arranged in an "open-ended collective" (Bennett, 2010: 24). It is with the power of these assemblages in mind that I intend to analyse the power of Yemen's ongoing waste management crisis.

In September 2016, a massive cholera outbreak struck Yemen, and quickly became the single largest documented epidemic of that disease in modern times (Camacho et al., 2018). Amid the collapse of waste management infrastructure, massive buildups of garbage in the streets of urban centers found their way into municipal water supplies and quickly spread the disease to nearly a million people within six months (Lyons, 2017). The garbage actants found in Yemen's dumps, through an agentic trajectory found in assemblages of non-human actants, found their way into the water system of Yemeni cities and produced a dangerous series of emergent effects on their

populations. Amid a looming famine, many Yemenis turned to sifting through garbage to scavenge for food, further accelerating the risk of cholera contraction (Zeyad, 2018, Trew, 2019). Imbued with a vibrancy of thing-power that runs across bodies, Yemeni garbage assemblages have a collective agency, the "impetus issuing from material assemblages whose elements include an ontological variety of actants" (Bennett, 2005: 458).

It is amid the context of the war that garbage assemblages have emerged as a cause of dramatic and deadly events, given the wholesale destruction of Yemen's already limited waste governance. Diverse ontological varieties of waste have resulted in a blooming of emergent effects impossible without the agency of assemblage. It is when waste actants conglomerate in massive assemblages like uncollected garbage that "effects dramatic and subtle" emerge in a shockingly diverse variety of ways (Bennett, 2010: 6). But it is only through the agency of the assemblage that the dramatic effect of the cholera outbreak occurred, given that untreated sewage and medical waste spread through the Yemeni populace through its collective power as an assemblage. Whether it washed into the water supply or was contracted during food scavenging by a hungry population, cholera pathogens spread through the assembled, confederative power of varied ontological categories of garbage assembled en masse. The ontological array of bodies found in Yemeni trash, ranging from solid waste to sewage to toxic medical efflux, issued forth an impetus of pathogens into the bodies of urban residents, producing an effect as dramatic as the largest cholera outbreak in modern history (Camacho et al. 2018). The singular parts in Yemen's assemblages of garbage do not necessarily have the power to produce major effects on their own, though its individual parts like raw sewage and untreated medical waste may be individually dangerous. The "living…confederation" of garbage actants has an agentic trajectory possible in the aggregation of so much waste, and it is only through its collectivity that it has obtained this agency in its non-humanity (Bennett, 2010: 23).

Further "dramatic effects" have and will likely continue to emerge from Yemen's vast assemblages of garbage, particularly in terms of its environmental consequences. Like the threat of cholera, further environmental-humanitarian crises have emerged from the collective agency of garbage assemblages. In addition to a steady stream of cholera pathogens, the 10 million ton garbage hill outside of Sana'a frequently leaches out hazardous chemicals which gather in vast pools at the base of the pile (Browning, 2016). By October 2015, at least one million tons of recently-generated debris from destroyed buildings had joined the garbage mixture all across Yemen, releasing clouds of dangerous household products, chemicals from unexploded ordnance, and asbestos (Weir, 2019). Yemenis have increasingly taken to burning garbage given its steady buildup, which releases toxic chemicals like mercury, nitrogen dioxide, sulphur dioxide, and volatile organics into the air (Weir, 2019).

To borrow Bennett's (2010) language, "lively" streams of chemicals seep out of the assemblage of waste, finding their way into groundwater and air and into human bodies with a diverse and often dramatic series of effects, ranging from respiratory disorders to birth defects to kidney disease to cancer (Weir, 2019, Browning, 2016). Such lively streams have already entered into agricultural facilities and ambient air (Weir, 2019). Like cholera outbreaks, food insecurity, and water pollution, the environmental risk of hazardous chemicals is yet another emergent effect of the agentic properties of garbage assemblages. A diverse panoply of human and non-human actants, ranging from unseparated and diverse collections of toxic waste, building debris, fire, and the chemicals that emerge from them all give rise to substantial consequences. But it is only in the confederation of diverse ontologies in an assemblage that these effects can take place and that the agency of non-human waste actants can be fully realised.

Slow Violence and the Ecologies of Disaster

The lasting effects of war often produce "open-ended, uncertain ecologies of the aftermath," with substantial consequences for the victims in any given conflict (Nixon, 2011: 200). War has always produced substantial ecological as well as political effects, as catastrophes caused by the material effects of war take shape over long periods of time. The Yemeni Civil War's acceleration of a massive garbage crisis into a series of powerful and deadly agentic assemblages has engendered an environment of "slow violence" in Yemen, "…a violence that occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all" (Nixon, 2011: 2). This gradual yet powerful form of violence is the frequent humanitarian result of warfare, the effects of which are often wrongly considered to be the exclusive domain of kinetic, short-term, individual violent acts. This final section will analyse the agentic power of garbage

assemblages in producing delayed catastrophes, emergent in a series of long-term humanitarian crises.

The agentic power of garbage assemblages like the Sana'a garbage hill and other such uncontrolled dumps in Yemen are not strictly limited to the present cholera outbreak, nor the pollution of water. Rather, long-term exposure to the slurry of lively chemicals leaching into groundwater from liquid waste or entering the air from garbage burns will invariably have health effects well into the future. A United Nations report (2015: 30) on Yemen's waste infrastructure put the long-term effects of toxic chemical exposure from garbage into perspective, with such diverse health effects as respiratory disease, skin irritation, immune disorders, gastroenteric problems, various cancers, and endocrine disruption. Underground fires deep in the heart of Yemeni dumps may continue to burn even as surface flames go out, possibly causing landslides and other environmental dangers in the long-term (2015: 30). Extensive evidence exists that natal and childhood exposure to heavy metals like mercury, found in Yemeni garbage smoke, can cause neurological and nephritic damage, ranging from immune disorders to long-term kidney disease (Bose-O'Reilly et. al, 2011). Leachate, composed of chemicals found in the vast septic pools at the base of Yemeni garbage dumps, has already seeped into deep reserves of groundwater and irrigation networks (Weir, 2019). Lively and vibrant chemical chains will continue to emerge from Yemen's assemblages of garbage, even as the war inevitably draws to a formal close, slowly poisoning its population and inflicting attritional violence years after the war ends.

Bennett (2005: 461) describes the agentic effects of assemblages as not only ever-shifting but also frequently gradual, contributing to emergent effects and spurring events as the assemblage shifts in "internal alteration." These effects and events frequently stretch out temporally, with the agentic power of assemblages contributing to gradual, slow occurrences. Following Nixon (2011), the future casualties of Yemen's civil war may not be limited to those who died in Saudi bombing raids or internecine religious conflict, but those who suffer from health problems engendered by toxic chemicals introduced into the environment by the total collapse of waste management infrastructure. Thus, the agentic power of Yemen's garbage crisis is not strictly limited to recent events like its cholera outbreak. Rather, the full agentic power of Yemen's garbage assemblages may be seen in the long term, as its ontological medley of varied types of waste engenders a subtle and slow form of violence inflicted on the Yemeni people.

But the slowly violent effects of Yemen's garbage are not limited to biochemical effects on human health. The political ramifications of Yemen's ongoing garbage crisis are also quite substantial, and risk shattering an already broken nation. Waste management is an essential aspect of public health and state services, and the destruction of Yemen's infrastructure has demonstrated significant risks to both environmental policy and overall governance (Weir, 2019). The agentic effects of garbage assemblages, ranging from disease outbreaks to chemical exposure to pollution, have exposed thousands of Yemenis to significant and long-term health problems. Of the 3.6 million Yemenis internally displaced over the course of the conflict, hundreds of thousands have likely been exposed to waste and its associated host of health effects owing to the total collapse of management infrastructure (IDPC, 2019; UNOCHA, 2015). The long-term effects of disease exposure, coupled with the collapse of health and waste infrastructure and massive humanitarian crises engendered by the civil war, will likely beget continued public health crises that put significant strain on Yemen's government for years to come (Weir, 2019; Lyons, 2017). The vibrant power of garbage assemblages not only threatens the health of Yemenis, but also to slowly erode the ability of their government to manage its multitude of crises, and the environment of slow violence created in Yemen's garbage crisis threatens its ability to recover from its brutal war.

Conclusion: The Power of Waste

As the war in Yemen reaches a quagmire, Saudi Arabia is desperate to leave the conflict following its long-term failure to defeat Houthi rebels and its own accelerating COVID-19 crisis (Riedel, 2019). But even as its protracted conflict begins to gradually wind down, Yemen remains a nation in anguish, not just owing to the human actors in its conflict. Vast and powerful effects have emerged from the collapse of its waste infrastructure, a melange of waste actants capable of producing dramatic effects like cholera outbreaks and environmental pollution. The significant power of trash assemblages has engendered an environment of "slow violence" in Yemen, which its population will suffer from in the long term both in terms of its chemical and political effects. The "worst humanitarian crisis in the world" is partly so because of the power and agency of garbage assemblages in affecting the course of events. The deadly effects emergent from Yemen's vast assemblages of wartime garbage are, sadly, only just beginning.

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[2] The Pashtun dominated Quetta division and the Baloch dominated Kalat division were combined to form the modern Balochistan province after the abolition of the One Unit Scheme in 1970.

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