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Bodies, Toxins, and E-Waste Labour Interventions in Ghana: Toward a Toxic Postcolonial Corporality?

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ABSTRACT
This article explores the lived experience of electronic waste (e-waste) workers in Agbogbloshie, a primary e-waste recycling center and scrap metal market in Accra, Ghana, that has been described by international environmental organizations as one of the most polluted places on Earth. To formulate a more critical and contextual understanding of the lives of these e-waste workers and their embodied toxic experience, the article introduces the concept of "toxic postcolonial corporality", a term deployed to navigate and confront the contentious intersection of bodies, toxins, and "green" recycling interventions in a postcolonial urban scrapyard. After introducing the social, economic, and toxic dimensions of Agbogbloshie, I discuss the problems and politics of permeability in general and the precarious boundaries of bodies, environments, and risk mitigation practices in a postcolonial context in particular. It will be argued that the notion of *toxic postcolonial corporality* offers a possible critical environmental health perspective that can inform anthropological engagements with the embedded lives navigating the permeable and intersecting worlds of pollution, postcolonization, and decontamination.

KEY WORDS
Toxics, e-waste labor, embodiment, postcolonialism, Ghana.

CUERPOS, TOXINAS E INTERVENCIONES LABORALES CON RESIDUOS ELECTRÓNICOS EN GHANA: ¿HACIA UNA CORPORALIDAD POSCOLONIAL TÓXICA?

RESUMEN
Este artículo explora la experiencia vivida de los trabajadores de residuos electrónicos *(e-waste)* en Agbogbloshie, un centro primario de reciclaje de desechos electrónicos y un mercado de chatarra en Accra, Ghana, que ha sido descrito como uno de los lugares más contaminados de la Tierra. Para formular una comprensión más crítica y contextual de las vidas de estos trabajadores y su experiencia corporal tóxica, el artículo presenta el concepto de «corporalidad poscolonial tóxica», un término que se despliega para navegar y afrontar la controvertida intersección entre cuerpos, toxinas e intervenciones de reciclaje «verde» en un desguace urbano poscolonial. Después de presentar las dimensiones sociales, económicas y tóxicas de Agbogbloshie, este artículo trata en general sobre los problemas y las políticas de la permeabilidad tóxica, y en particular sobre las fronteras precarias de los cuerpos, ambientes y prácticas de mitigación de riesgos en un contexto poscolonial. Se argumenta que la *corporalidad poscolonial tóxica* proporciona una perspectiva crítica de la salud ambiental, que puede informar a los compromisos antropológicos con las vidas que navegan por los mundos permeables y entrecruzados de la contaminación y la poscolonización.

PALABRAS CLAVE
Tóxicos, residuos electrónicos, *embodiment*, poscolonialismo, Ghana.

1. Introduction

A bustling scrap market in Accra, Ghana, Agbogbloshie has become a standout site for scholars and activists engaged in global studies of electronic waste (e-waste) and toxicity. A vibrant location of symbolic and material politics and complexities of Digital Age discard and environmental health disaster, Agbogbloshie has attracted international environmental advocacy organizations, engineers, environmental health scientists, slum and toxic tourists, journalists, photographers, and social scientists. With support from a variety of government agencies and non-governmental organizations (NGOs), Agbogbloshie has also transformed into an experimental space and place of environmental health intervention and is currently home to a new e-waste recycling facility aimed at meeting toxic risk reduction goals. These intervention efforts primarily aim to reduce the toxic exposures and health risks associated with "cable burning" — one primary source of air pollution in Agbogbloshie — by encouraging the use of automated machines to strip insulated cables and wires of various sizes containing copper and other valuable, yet toxic, materials. Workers in Agbogbloshie occupy a smoky scrap market zone of intense metal recovery, a site where the burning of e-waste to recover valuable metals, especially copper and aluminum, is an everyday "urban mining" (Grant and Oteng-Ababio, 2016) activity.

Inundated with discarded "modern" marvels, from junked cars to refrigerators, treadmills, photocopiers, and clunky desktop computers, Agbogbloshie is also an urban space consumed by lead, mercury, cadmium, PCBs, and airborne contaminants, including polybrominated diphenyl ethers (PBDEs). These toxins have been the focus of numerous environmental health studies at Agbogbloshie and surrounding areas (Caravanos, Clark, Fuller and Lambertson, 2011; Caravanos, Clarke and Osei, 2013; Feldt, Fobil, and Wittsiepe, 2014; Wittsiepe, Fobil and Till, 2015). For the e-waste recyclers working with copper-based electrical cables in particular, a primary exposure concern is the burning of the polyvinyl chlorides (PVCs) plastic that insulate the cables and contain harmful compounds. Those living and working in e-waste recycling hubs have been the focus of numerous environmental epidemiological studies (Asante, Adu-Kumi and Nakahiro, 2011; Asante, Agusa and Biney, 2012; Caravanos, Clarke, and Osei, 2013; Feldt, Fobil, and Wittsiepe, 2014; Liu, Xu and Wu, 2011; Sepúlveda, Schluep and Renaud, 2010; Wittsiepe, Fobil, and Till, 2015). These studies have shown that children are particularly susceptible due to hand-to-mouth behavior common among young children and other routes of exposure including breastfeeding, placental exposure, secondhand ex-

posure to parents' contaminated clothing, and skin-to-skin contact. Research has also revealed that children living in or near e-waste recycling facilities illustrate significantly lower weights, heights, and body mass index compared to populations unaffected by pollutants from informal e-waste recycling. The lead in many of these e-waste sites also affected neonatal neurological development (Liu, Xu and Wu, 2011). These findings have led several researchers to encourage international public health agencies to argue that "the health effects of e-waste exposure must become a priority of the international community" (Grant, Goldizen and Sly, 2013: 357).

These known toxic threats have drawn the attention of international NGOs, turning Agbogbloshie into a place of optimistic, yet contentious, NGO intervention that seek to "eliminate" burning of electronics by migrant laborers who make up the majority of scrapyard workers. These "green" e-waste interventions include environmental health logics and goals that tend to overlook the permeable bodies and subjectivities negotiating this toxic postcolonial landscape. In this article, I draw on ethnographic research to explore how Agbogbloshie workers narrate, understand, and refer to their own bodily distress to make sense of the environmental and occupational health risks they face. In particular, I attend to how workers refer to not only "internal" conditions of toxicity (e.g., lung and heart pains) but also the more visible "exterior" conditions of their bodies — often their burnt skin — to make sense of their own toxic corporality. In addition to exploring how toxic embodiment and experience breaks down or reconfigures demarcations of body and environment, I also highlight the ways in which toxicity and corporality become the site of laudable environmental health risk mitigation efforts that ironically fail to transform or reduce toxic corporality in an enduring postcolonial context. In this way, I explore how a solutions-based intervention in Agbogbloshie overlooks the complexity and diversity of eco-corporeal relations in a scrap market space where bodies, toxins, and economic needs intersect.

2. A Brief Overview of Agbogbloshie

Agbogbloshie has been described as one of the most toxic slums in the world and has become a beacon for the world's discarded electronics, making it one of the largest discard sites for electronics in the world in general and West Africa in particular. The Accra Metropolitan Assembly (AMA)[1] is

1. The AMA's mission is "to improve the quality of life of the people of the city of Accra especially the poor, vulnerable and excluded by providing and maintaining basic services

aware of the dangers informal e-waste recycling activities pose to not only the natural environment but also the people who live and work both in and around Agbogbloshie. However, the AMA and other government agencies have been reluctant to remediate the problem because of the capital generated from e-waste recycling activities. For scholars who have reviewed political and economic assessments of Agbogbloshie, the e-waste market makes between $105 million to $268 million dollars annually and provides employment opportunities for roughly 4,500-6,000 workers (Daum, Stoler and Grant, 2017). After a devastating flood in 2015, which killed several hundred people, the AMA turned to aggressive flood mitigation actions that directly impacted workers living adjacent to Agbogbloshie in the informal settlement Old Fadama, a settlement that provides residence to most of Agbogbloshie's workers. The AMA demolished dwelling structures within the designated flood zone, displacing many people and causing outrage and resistance among Old Fadama residents.

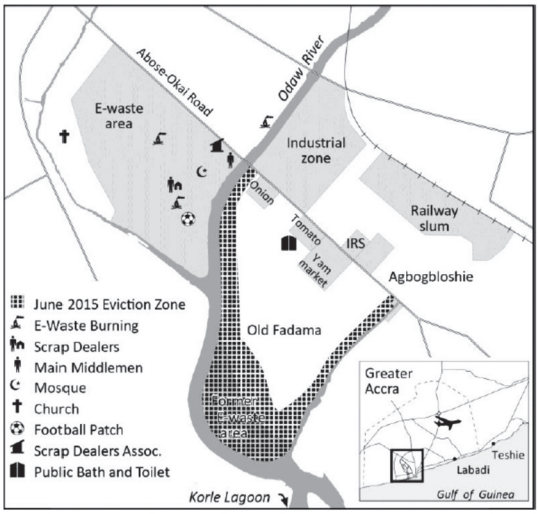

Figure 1. Agbogbloshie Site Map. Adapted from Daum, Stoler and Grant (2017).

Agbogbloshie is more than a scrap metal market. Over the years, the site has grown to include mosques, churches, informal football fields, a goat pasture, and gardens producing agricultural goods (see Figure 1).

and facilities in the areas of education, health, sanitation and other social amenities, in the context of discipline, a sense of urgency and commitment to excellence".

With a meat market in walking distance to the scrapyard, livestock graze everywhere at the site and even rest on the mounds of ash generated from the cable burning. During one visit to the site in 2016, one worker explained that "They [the grazing livestock] are always here. They sit on the ash. After we burn, they wait and sit on the ash". I observed this during my daily visits to the site and was later told that when the ash cools down, the livestock like to rest on it and get it on their fur. "They like how it feel", I was told. Recent studies by researchers at the University of Ghana have confirmed that the meat from these livestock is rich in heavy metals and other toxic substances and the same contaminants, especially high levels of heavy metals (e.g., lead, zinc, and chromium) and flame retardants, are found in the blood of workers at the site. The little to no protection worn by these workers has been viewed as the cause of these elevated levels of toxins but the long-term health effects these practices have on these workers had yet to be discovered (See Figure 2).

Figure 2. Burning e-waste in Agbogbloshie. Photo by author.

The informal e-waste recycling at Agbogbloshie has no doubt caused detrimental environmental effects. The open burning of waste electrical and electronic equipment (WEEE) to extract copper and aluminum directly pollutes surrounding air, water, and land. Once metal scrap and WEEE is transported to Agbogbloshie — either from nearby households and

businesses or from the port of Tema — workers take what they know they can dismantle and resell the metal for cash. In addition to skilled dismantling of computers, printers, and other electronics, workers also engage in open burning of WEEE to extract valuable copper and aluminum. This has been the primary source of air pollution and is the core environmental health risk to be recognized by internationally recognized epidemiologists and public health experts at Ghana Health Services, the country's leading public health agency. It is well known that these informal e-waste recycling practices release toxins not only into the air but also leave behind a toxic ash on the soil, which can then blow around and become yet another airborne toxin as well as a source of local water contamination. Additionally, pollution generated at Agbogbloshie is blamed for poor air quality in Accra writ large (Daum, Stoler and Grant, 2017), yet many know that this city of over two million is also choked by cars, buses, and delivery trucks that significantly contribute to urban air quality.

According to one report on e-waste labor conditions:

> E-waste recycling in Ghana is organized into abundant small and informal enterprises. Recyclers in Accra are mostly from the poor northern part of the country, a region facing chronic food insecurity. E-waste recycling has been found to be a more reliable livelihood strategy, despite severe environmental and health hazards. Most of the people employed in the e-waste recycling sector are between 14 and 40 years of age, work for 10-12 hours per day and produce 108-168 overtime hours per month. However, most of the workers do not have any fixed working hours per day or per week (Lundgren, 2012: 28).

> My own ethnographic research in Agbogbloshie has also revealed that most of these workers would rather be in their villages in the north, especially if their livelihoods could be supported by wages equal to those found in the e-waste recycling sector. According to Alhassan, who has worked in Agbogbloshie since 2014, for example: "Life north is hard. No money. No work there. That be why we come here. Here it is hard. Nobody cares for us. Living north with work is good. I wish for that". As will be described later, putting their bodies (and their health) on the toxic frontlines is considered the best of available options for workers who feel and embody the pains of vulnerability, displacement, and the distress caused by extreme poverty and marginalization.

In this article, I explore what I call "toxic postcolonial corporality" to develop a social, environmental, and biopolitical critique of the uncertain boundaries between electronic discard labor and the paradoxical risk mitigation logics of NGO e-waste interventions. Focusing on how Agbogbloshie workers understand and engage a discourse of permeability and precarity sheds light on their ways of making sense of their post-

colonial bodies, environments, and economies. I shall argue that these discourses expose new anthropological insight at the intersection of discard studies and the "political ecology of the body" (Alter, 2016) in a site of extreme and toxic commodity metal recovery. In particular, I argue that attending to how these workers manage and make sense of established environmental health risks of e-waste labor (Chen, Dietrich and Huo, 2011; Feldt, Fobil and Wittsiepe, 2014), how they grapple with vital uncertainties of e-waste recycling labor and NGO intervention, helps us understand the bodily distress and toxic ecology of informal e-waste recycling, and especially the embodied experiences of toxic postcoloniality.

Several critical environmental health questions inform the focus here and might be used to theoretically augment debates on toxic labor and body-environment relations: what are working bodies and subjectivities up to in a toxic postcolonial urban context? What stories do e-waste laboring bodies and subjectivities tell? What boundaries do these stories of toxic embodiment push or break down? Finally, what is the ethical and political role of anthropology in postcolonial toxic struggles, especially where extreme environmental health challenges persist and where solutions-based interventions overlook the complexity and diversity of eco-corporeal relations? How do e-waste interventions reduce understandings of risk to chemical toxicity rather than a broader ecology of risk that actually condition embodied experiences of toxic labor?

3. Postcolonial Contextualization

It is difficult to fully understand the environmental health politics of e-waste labor and life in Agbogbloshie without a full consideration of colonial, postcolonial, and neocolonial contextualization in Ghana more generally. Ghana became an independent nation-state in 1957, a break from the British led by Kwame Nkrumah that sparked a pan-African independence movement. The unevenness of global economic geography did not change dramatically as a result of this independence movement. One reason was that many British companies stayed put after 1957 and, in fact, had a monopoly on Ghana's mining industry. Today, China is the new foreign power expanding mining operations and financing development projects throughout the country. Africa isn't poor, the saying goes, instead its wealth is stolen. As Nkrumah himself put it in 1965 in his book *Neo-Colonialism: The Last Stage of Imperialism*, "Africa is a paradox which illustrates and highlights neo-colonialism. Her earth is rich, yet the products that come from above and below her soil continue to enrich, not

Africans predominantly, but groups and individuals who operate to Africa's impoverishment".

While recent scholarship on Agbogbloshie purports that "e-waste is a multidimensional phenomenon" that calls for a more "sustainable trajectory for e-waste policy" (Daum, Stoler and Grant, 2017), postcolonial critique and postcoloniality itself lacks direct engagement or mention. This omission may not be intentional, but confronting postcoloniality matters if we truly wish to develop a deeper understanding of environmental health politics and toxic contextualization in Agbogbloshie. Furthermore, it matters because postcoloniality in Ghana is continually conditioned by ongoing biocultural and ecosocial struggles that inform processes of decolonization. As Fanon put it in his *The Wretched of the Earth,* life under decolonization is all about enduring delinquencies and forms of semiotic struggle that rarely, if ever, escape violent rupture: "National liberation, national reawakening, restoration of the nation to the people or Commonwealth, whatever the name used, whatever the latest expression, decolonization is always a violent event" (Fanon, 1963: 1). The "event," as postcolonial and phenomenological social sciences have long argued, is materially embodied and therefore thrives in actual bodies bound to locations and conditioned by histories of struggle. Making sense of the contaminated postcolonial body in Agbogbloshie is a matter of figuring toxicity amid significant forms of bodily and environmental violence and injustice (Akese and Little, 2018; Peluso and Watts, 2001). In other words, the struggle over environmental health and toxic injustice in Agbogbloshie is a struggle informed by a deeper history of exploitation and marginalization that persists in postcolonial Ghana. According to Pierre (2013: xii), "As a postcolony, Ghana's contemporary realities are connected to an interlinked set of practices, experiences, and belief systems — a specific predicament of the long history of European empire making". Amid this imperialistic statemaking or statecraft, Pierre (2013) argues, is postcolonial "racecraft": "A modern, postcolonial space is invariably a racialized one; it is a space where racial and cultural logics continue to be constituted and reconstituted in the images, institutions, and relationships of the structuring colonial moment" (2013: xii). Agbogbloshie, in this way, is a space where colonization, contamination, and racialization are contentiously entwined by newly emerging and ongoing practices of postcoloniality and toxicity, practices which are experienced by "embedded bodies" (Lock, 2015; Niewöhner, 2011).

Making sense of e-waste or other discarded "stuff that is being governed" (Gregson and Crang, 2010: 1027) in the postcolony calls for a deeper understanding of the dynamics of labor, trade, and enduring forms

of exploitation and injustice in Ghana. As Pickren (2014) might suggest, building a critical environmental health and corporality approach to e-waste risk in Agbogbloshie needs to "account for the *absences and/or ambiguities* of the law, particularly around exemptions and exclusions for certain materials as well as trade and labor conditions" (Pickren, 2014: 31). Moreover, for economic sectors emerging or being reorganized in Ghana to aid "economic" development — and the Agbogbloshie scrap market is a major player in Accra's urban industrial sector — face hard postcolonial challenges. In the postcolony, as Mbembe reminds us, "hardly any sector… is free of corruption and venality" (Mbembe, 2001: 85). In postcolonial Agbogbloshie, workers learn and struggle to navigate toxic venality.

One "sector" that has rapidly emerged and been sustained in Ghana at least since 2005 is the e-waste recycling sector, a sector that has long drawn the attention of global environmental and occupational health scientists. Human exposures to e-waste are very complex, with multiple routes and lengths of exposure but also the activity in which the person is being exposed. As Grant, Goldizen and Sly (2013) have suggested, e-waste exposures can be sourced or categorized into three sectors: informal recycling, formal recycling, and exposure to hazardous e-waste compounds left over from recycling practices. Formal e-waste recycling centers can help to solve this problem and help protect workers from the possible health effects of this e-waste exposure, however they are very expensive to build and uncommon in many of the e-waste hubs in the world. In fact, Agbogbloshie, as I will discuss in more detail later, has become an experimental space for "formalized" e-waste recycling. But in general, the lack of these formalized and "greener" recycling facilities for residents living within a certain distance of informal recycling spaces, puts these people at greater risk to food, water, and soil contaminated by toxic e-waste recycling activities. As research has found, the most common routes of exposure in these areas is through inhalation, ingestion, and dermal contact (Grant, Goldizen and Sly, 2013; Little, 2016).[2]

The electronics recycling market has, for some, created jobs and reduced poverty levels in some parts of the world, but the waste this "recycling" market creates is hazardous to social and environmental systems.

2. In China, for example, where e-waste studies have a longer track record, 165 studies have been conducted to illustrate the correlation between e-waste exposures and physical and mental health, and neurological development impacts. Of these 165 studies, 23 reported the associations between both physical and mental health, while 16 studies alone illustrated strong associations between e-waste exposures and physical health, showing impacts on thyroid function, reproductive health, lung function and growth, and adverse changes in cellular function (Grant, Goldizen and Sly, 2013).

Knowing this, developed countries have adopted appropriate management systems to help divert and transport e-waste out of electronics producing countries. This waste is then transported to developing countries like Ghana which has an informal sector to take in this waste and help recycle it to turn a profit. However, Ghana lacks the proper legislation and infrastructure to properly handle these flows of e-waste disposal and "donation" (Fuhriman, 2008). Forty to sixty percent of e-waste is recycled and 95% of this waste is recycled informally or in a labor sector where environment and human safety concerns are not a priority or not under any formal management. Many Ghanaians would agree that replacing the informal sector with a formal sector is impractical because the majority of the country relies on informal labor.

According to Oteng-Ababioa and Amankwaab (2014: 189), "researchers depict e-waste collection and treatment as a highly intricate system, in which the flow of materials includes a great variety of inter-connected stakeholders". Waste picking has cemented itself as part of the urban economy supplying employment for many of Ghana's most marginalized people. The collection of e-waste can be difficult and expensive to ensure it gets to the proper treatment facilities and this is where researchers observe the most overlap between the formal and informal market. Ghana receives over 215,000 tons of waste from the developed world every year and the informal recycling sector dominates most of the country with no regulation. Some suggest that the ideal model for e-waste recycling in Ghana is to integrate the informal and formal sectors to combine the interests of all groups participating in the e-waste economy, an economy that is responsible for roughly 95% of the recycled waste in Ghana (Oteng-Ababioa and Amankwaab, 2014).

Unraveling the toxic labor experience in Agbogbloshie calls attention to numerous critical environmental health questions: what are bodies and subjectivities up to in a toxic postcolonial urban context? How are bodies and environments entangled, and how is that entanglement narrated and made legible?

4. Embodied E-Waste Narratives

Making sense of toxic corporality and permeability in Agbogbloshie calls for going "beyond the body proper" (Lock and Farquhar, 2007), an anthropological perspective on the body that encourages discussion of "a lively carnality suffused with words, images, senses, desires, and powers" (Farquhar and Lock, 2007:15). We don't simply confront biologized or cultured bodies, but localized and "embedded bodies" (Lock, 2015;

Niewöhner, 2011). In this way, Agbogbloshie is an urban space where "biosocial becomings" (Ingold and Palsson, 2013) persist in an environment of extreme pollution and multiple forms of toxic risk. Especially in our chemically inundated epigenetic age, all ethnographies of toxicity are challenged to grapple with the "inextricable multiplicities among material bodies and environments past and present: historical/social/political variables, and subjectivities" (Lock, 2015: 153). Exploring the force of epigenetics among reproductive toxicologists in China, Lamoreaux (2016) has advanced anthropological discussion of epigenetics by posing the question "what if the environment *is* a person?" (Lamoreaux, 2016; my emphasis), meaning the individual can stand in for both *being* and *representing* the toxic environment. The boundary between body and environment, the person and their surroundings, in this case, collapses, leading to a critical rereading of the individual as the environment and environmental signal that renews "urgency about the relations of the body's material environment and its internal [epigenetic] constitution" (Landecker, 2016: 91). It also calls into question the growing convergence of *bio*, *eco*, and even *geo* ontological (Povinelli, 2016) politics of toxic environments in general. Land, body, economy, and toxic substances are all entwined and comingling in e-waste recycling hubs like Agbogbloshie, a situation which invokes a critical empirical approach to body-environment boundaries and the leaky nature of these boundaries.

In an effort to navigate these porous corporeal boundaries, I wish to turn to the ways in which e-waste workers refer to not only "internal" conditions of toxicity (e.g., lung and heart pains) but also the more visible "exterior" conditions of their bodies (e.g., dermal ailments) to make sense of and make legible their own toxic corporality. This involves asking how we come to know the bodily experience of toxicity and what in fact are the observable boundaries between bodies and environments, between object and subject, in Agbogbloshie? It also involves asking ourselves how or to what extent ethnography exposes these boundary politics by focusing on the lived experience and identity of those working and living at the front lines of toxicity.

To navigate these important questions, I want to draw on some findings from ethnographic research conducted at Agbogbloshie in the summers of 2015 and 2016. Composed of embedded bodies and lived subjectivities dealing with a smoky, fiery, and hazardous landscape of extreme scrap metal recovery, my ethnographic experience in Agbogbloshie has been one of front-and-center relations of power at the intersection of bodies, toxins, economies, and "green" intervention strategies. My project tracks the lived experience of a small group of workers who primarily

extract copper from discarded electronics, but for the purposes of this article I will focus on one worker in particular. On my first visit to the site in July 2015, I met Ibrahim, a young e-waste worker from Savelugu in the Dagbon region of northern Ghana. He was twenty when we first met and when I returned for fieldwork in 2016, he was married and had a week-old baby. Ibrahim is of the Dagomba tribe, like many of his co-workers in Agbogbloshie and family living in Old Fadama. Like other young men from Savelugu, he travels to Agbogbloshie for three months at a time, two to three times a year. Beyond the difficulties of making a living as a young migrant laborer and new father with little formal education, "environmental suffering" (Auyero and Swistun, 2009) and distress are additional stressors.

Ibrahim has reported to me several times during visits that his health is not good. He mentions his struggle with what he calls "chesty cough" and has a difficult time sleeping. He tells me he struggles with chronic headaches and full-body exhaustion. Epidemiologist from abroad and from Ghana Health Services, Ghana's primary public health agency, have collected his blood and urine for their epidemiological studies. As noted earlier, these studies have been published in credible science journals, but Ibrahim has no idea what the results are, nor what researchers are doing with his blood and urine and why routine (annual) collection of this bodily matter of e-waste workers is occurring. He has no laboratory data on the levels of lead and cadmium in his body, but he does know that e-waste labor punctures and burns his skin. When Ibrahim and I met for the first time in 2015 and I asked about his health experience he pointed to his burns and scars to show me the environmental health impacts of his labor. For him, health issues communicate everything you need to know about the harsh reality of working in Agbogbloshie. He made this particularly clear to me during an interview in 2016, shortly after his first son was born: "Look at dis. Dis be dat. The e-waste. It burn my body. We burn our bodies here. We hurt. We know it is no good. But how do we live? Life in north is hard. We need this here. My body is bad. Bad body doing this work". For Ibrahim, navigating a life in one of the "most polluted places on Earth" is considered the best of two options; struggle in the North with a depressed agricultural market and make no money or tough it out in the Agbogbloshie scrap metal market with extreme toxic exposures and make some money. Coping with the toxicity of e-waste labor is a matter of *economic* survival, perhaps even a matter of bioeconomic vitality and resilience. But the scrap market is also a place where not only the informal economy flourishes, but also where "distributed livelihoods" are sustained (Ferguson, 2015). In this sense, Agbogbloshie's low-cost wage labor situ-

ation is not simply an economic situation, because behind economic practice is a deeper social logic of distribution: "distribution is a crucial social activity that is constitutive of the social (and not only the economic) order. Accordingly, we need to pay attention to the idea of distribution as a necessary and valuable social activity" (2015: 90). When Ibrahim talks to me about making money and going back to his village in the north, he is describing his distributive life plan. He is explaining "the human economy" (Hart, Laville and Cattani, 2010) he engages and how his productive labor is more than his alone. In other words, "*being* someone [continues] to imply *belonging* to someone" (Ferguson, 2015: 148).

In addition to distributing his wages to his family, Ibrahim also shares photos of his injuries with me as both a way to stay in touch but also to expose environmental health risks that speak directly to the vital politics of permeability and the dermal risks of copper burning (see Figure 3).

Figure 3. Ibrahim's scar from burning copper cables. Photo by author.

Surrounded by toxic metals and open flames, Ibrahim experiences risks beyond the everyday bioaccumulation of heavy metals. He deals, first and foremost, with the risks of fire and smoke in general and the open incineration of the countless petroleum-based materials that clutter the

scrapyard. His burnt body is symbolic of the "new materialism" of the anthropology of the body; a body that "is at once subjective and objective, carnal and conscious, observable and legible" (Farquhar and Lock, 2007: 11). Toxic risk is made legible through the body, the skin, the surface of the embedded body.

Narratives of toxicity and risk in Agbogbloshie exist alongside NGO environmental health interventions and discourses. In 2014, Agbogbloshie became the site of a "model" e-waste recycling center built to make e-waste recycling work safer and more environmentally friendly. The primary mission: "Eliminate burning at Agbogbloshie". With support from a variety of government and nongovernment agencies, the new recycling facility, recently named the Agbogbloshie Recycling Center has a clear risk reduction goal (Figure 4). The list of partnering agencies and organizations is long: the European Commission, United Nations Industrial Development Organization, Global Alliance for Health and Pollution, the Ministry of Environment, Ghana's Environmental Protection Agency, Ghana Health Services, National Youth Authority, Pure Earth.org, Green Advocacy Ghana, and the Greater Accra Scrap Dealers Association. In short, the new facility aims to reduce the health risks of electronic cable burning — only one of many sources of air pollution in Agbogbloshie — by using automated machines to strip coated cables and wires of various sizes containing copper and other valuable, yet toxic, materials. The e-waste received is primarily large electrical cables — aluminum-based cables — from either Ghana's electrical utility company or from neighboring countries like Burkina Faso.

The bundles of wires that the burners collect and burn are much smaller in diameter and are coming from small household electronics, junked cars, buses, and trucks, all urban electronic discard containing copper. These wire bundles range in size and are worth between 8 and 10 Ghana cedi (roughly between $2.00 and $2.50), though metal market values directly impact local copper prices. It takes workers about 10-15 minutes to burn off all the plastic insulation. The copper wire is then bagged and sold to scrap metal dealers, usually Nigerians, who then sell the copper for export in Tema, the planned industrial port of Accra, which is about 20 miles east of the city center. The raw copper is then sent offshore to fuel development demands in China and India.

Marginalized agents of this metals' recovery and commodity chain of events, Ibrahim and his co-workers are aware of the air pollution they create. They are aware and know because everything is visible, observable, and out in the open to see. As one worker explained: "What we do here everyone can see. You can see our smoke. We are open to see. Other in-

dustry are more hidden and so is their pollution. People complain about smoke being produced here. Our work you see. Here you can see how it goes".

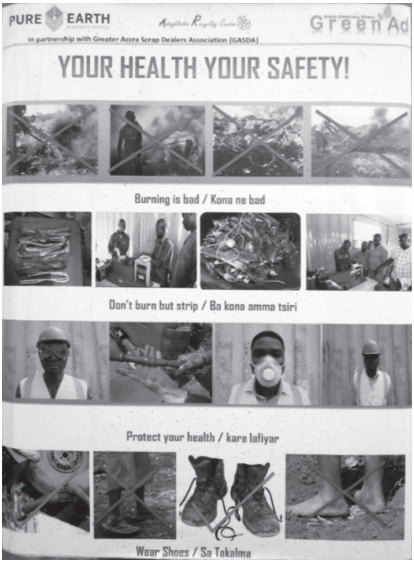

Figure 4. Health promotion poster in Agbogbloshie. Photo by author.

As seen in Figure 4, Pure Earth's health promotion campaign can be read as a "blame the victim" approach, where e-waste workers are told outright that "burning is bad" and that they should "wear shoes" and care about their health. The campaign aims to offer easy-to-understand solutions to negative practices of informal e-waster labor. While more could be said about the biopolitical dimensions of this health promotion agenda — particularly the combined forces of self-surveillance and couching recycling formalization within a narrative of good health practices — I want to point out that Pure Earth's approach to formalizing e-waste recycling in Agbogbloshie actually further marginalizes the workers who do the burning because they don't have direct access to the facility, they aren't trained to use the granulators for stripping the wires, using the granulators slows down the copper extraction process, it costs money to use the facility since the granulators run on electricity — a constant energy infrastructure problem in Ghana — and the facility primarily processes waste electrical equipment, usually large diameter cables, coming from Ghana's electrical utility company. Pure Earth's e-waste facility project operates

under the "progressive" idea that it can be a win-win for both workers and the environment, but many workers I have interviewed are skeptical of the efficacy and sustainability of the project. No matter how formalized the e-waste recycling sector gets, I am told by one worker: "this facility not good for me or many of us. It be good for someone, but everyone here know that the government want us out. They evict our people [in Old Fadama] who work here. But we do the e-waste recycling. And you see, nobody care for us here".

5. Toward a Toxic Postcolonial Corporality

Agbogbloshie exhibits some of the harshest and barest environmental health justice politics of our times. For scholars of "environmental health justice" (Masuada, Poland and Baxter, 2010; Miller and Wesley, 2016), there is no logical separation of the body and the historic and ongoing forms of discrimination and structural violence marking the body. As Miller and Wesley (2016: 75) suggest:

> [The] environmental health justice approach brings those often excluded from environmental decision making into the scope of constructing scientifically rigorous and socially relevant knowledge to legitimate community environmental justice efforts. An environmental health justice approach would, therefore, seek to level the playing field in terms of whose knowledge 'counts' in policy decisions that affect disenfranchised communities.

The bodies and identities managing to make a living in Agbogbloshie confront countless forms of social, economic, and environmental stress and injustice (Akese and Little, 2018). Thus, to fully understand the politics and permeability of toxics in Agbogbloshie I wish to draw attention to the term *toxic postcolonial corporality* to honor the fact that Agbogbloshie is also a place and space of postcolonial micropolitics and power. It is a flexible term that can be used to augment studies of the body-toxics-environment relationship in polluted postcolonial spaces and places.

In a return to the original coda of colonialism and the so-called "productive" afterlife of colonialism even in the postcolonial age, Mbembe (2001: 113) reminds us that "colonialism was, to a large extent, a way of disciplining bodies with the aim of making better use of them, docility and productivity going hand in hand". This is useful for thinking about *why* Ibrahim and his fellow workers migrate from Savelugu to Accra to work and "produce" in Agbogbloshie in the first place. They can be more pro-

ductive and make better wages working in Agbogbloshie since the sale of agricultural goods in northern Ghana is viewed as a losing economic battle, especially for workers like Ibrahim who are newly married, new fathers, and workers trying to provide for their families. He feels his labor is useless in Savelugu, even though his social capital in his village is praised because his father is a sub chief, and Ibrahim is himself a drummer in the palace of the head chief of Savelugu, the Yoo Naa. He sees value in migrating to Agbogbloshie because it is there that he can make money, money which he brings back to his father and other family members in Savelugu several times a year.

While there is no shortage of NGO critique to go around, especially NGO involvement in neoliberal Africa writ large (Ferguson, 2006), Agbogbloshie exhibits, a unique case where bodies themselves are seen as the ideal target of environmental health intervention. Despite the importance of pollution mitigation efforts, my ethnographic research shows that the most pressing concern for workers is the ability to work and sustain an economic livelihood that can support their families. E-waste workers know their bodies are on the toxic frontlines, they weigh the options as best they can, but many feels that no matter how hard they try they can't escape the poverty and marginalization they confront in Ghana's postcolonial times.

Using ethnographic research to better understand the various social, environmental, and economic life politics of e-waste in postcolonial Africa exposes many postcolonial politics informed by complex narratives of economic and environmental suffering. In Agbogbloshie in particular, the ethnography of e-waste labor and toxicity becomes a matter of navigating high-tech industrial "necropolitics" (Mbembe, 2003), a matter of actually living, engaged, and non-obsolete e-waste recyclers working with "vibrant matter" (Bennett, 2010) at the intersection and boundary of postcolonization and contamination. While they struggle with the body burdens of toxic postcoloniality, these e-waste workers are also subjects and objects of extreme economic and environmental precarity who desire a better life in the postcolony. It is in this sense that this article seeks to tilt the conversation of environmental health politics in Agbogbloshie towards an understanding of *toxic postcolonial corporality*. As a critical environmental health concept that aims to contribute to discussions of body-environment relations in a context of postcolonial marginality, it may also be employed to inform the anthropological analysis of permeability in general and the permeable boundaries between electronic discard, toxicity, and postcolonial labor in particular. Much like other work in the anthropology of discard that calls for going beyond risk and waste itself to ad-

vance social theories of (Reno, 2011 and 2014), the term may also bring greater attention to the need to go "beyond" dominant narratives of toxicity shaping perceptions and images of Agbogbloshie and instead advance ideas about this vibrant market space that more directly account for the place of narratives and bodies in shaping theories of body-environment relations and boundaries.

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