

## **Laboring in Electronic and Digital Waste Infrastructures: Colonial Temporalities of Violence in Asia**

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This article studies artworks that highlight and critique networks of electronic waste and digital waste in digital media. Digital waste refers to images of pornographic, abusive, or violent nature on platforms like YouTube and Facebook that are “cleaned” by content moderators. Global signal traffic demands labor that is particularly dependent on particular colored bodies who bear the brunt of toxic pollution from e-waste disposal and posttraumatic stress due to durational exposure to graphic violence. From a temporal perspective, this analysis looks at media infrastructure through a postcolonial lens to study the temporal violence and necropolitics of digital culture.

*Keywords: waste, necropolitics, content moderation, digital infrastructure, colonial temporality*

A young Filipino woman walks past a local waste dump filled with plastic rubbish, narrating her mother’s advice that she should study harder (see Figure 1). She grew up with the impression that if she did not study hard enough, she would end up processing garbage in the dumps for mere cents. This young woman works in Manila as a content moderator and cleans “techno-trash” (Roberts, 2016, p. 1) on the Internet. She may not be a garbage collector in the heart of Manila, but she is one of the nameless workers in Asia who clean up the global digital infrastructure.

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**Figure 1. Screenshot from *The Cleaners* (Beetz, Tschurtschenthaler, Block, & Rieseewieck, 2018, 01:21:55).**

Content moderators are paid to screen content uploaded to social media sites to evaluate whether certain content that is flagged as pornographic, abusive, violent, or inappropriate should stay on these sites or be deleted. This work, rather than processed in-house within global Internet platforms like Facebook and YouTube, is often outsourced to cheaper workforces elsewhere in the world (Breslow, 2018; Roberts, 2019).

In the above-described scene in the content moderation documentary *The Cleaners* (Beetz et al., 2018), we observe the coincidence of physical trash-dumping sites and digital content moderation. Waste is both material and digital; on one hand, areas in China, India, and Pakistan have become electronic waste hinterlands, while on the other, digital workers in the Philippines and India take on outsourced work of cleaning up unwanted “techno-trash” (Roberts, 2016, p. 1). With disposed objects and content moderation outsourced, Asia is identified in the documentary as a dumping ground and a processing plant of trash both physical and digital. Using this juxtaposition as a starting point, this article brings together the material and immaterial dimensions of technological infrastructure through a cultural analysis of select cultural artifacts that reflect on the politics of waste. These artifacts include the photography series *disCONNEXION* by Xing Danwen (2002–2003), and the documentaries *The Moderators* (Cassidy, Chen, McKeown, Cassidy, & Chen, 2017), directed by Ciaran Cassidy and Adrian Chen, and *The Cleaners* (Beetz et al., 2018), directed by Hans Block and Moritz Rieseewieck. The two documentaries represent two rare looks into content moderation as a practice characterized by “opacity” (Gillespie, 2018, p. 116) and “obfuscation” (Roberts, 2019, p. 25), shielded by nondisclosure agreements that prevent many workers from speaking out (Ahmad, 2018, p. 10).

The methodology of cultural analysis (Bal & Gonzales, 1999) is “concept-based” (Bal, 2002, p. 5) and uses the encounter between “traveling concepts” (Bal, 2002, p. 4; Pollock, 2007, p. xv) across disciplines and cultural artifacts (film, literature, art, etc.) to construct reflections on identity-based power (such as race and gender) and critically interrogate how history is inflected in contemporary culture. Inspired by the juxtaposition of two waste cultures in *The Cleaners* (Beetz et al., 2018), this article constructs an

encounter between cultural artifacts on waste and conceptions of temporality from postcolonial theory to study how colonial power persists in time in contemporary media networks. I advance a postcolonial critique on digital infrastructure through developing the concept "colonial temporalities of violence." As a foundation, I employ Ann Laura Stoler's (2016) "imperial durabilities" to characterize the lingering effects of colonial infrastructures of power that temporally haunt our digital infrastructure. I also follow Deborah Cowen's (2019) characterization of infrastructure as empire, noting that in settler colonies, racial capitalism's infrastructure (such as railroads) was literally built by colored bodies. To flesh out the notion of colonial temporalities, I focus on rhythm and duration with two meditations on slowness by Rob Nixon (2011) and Lauren Berlant (2011). Last, I rely on Aimé Césaire's (1995) seminal work on the imperial "boomerang effect" (p. 167) to address future-oriented temporalities. Bringing these concepts together with the chosen cultural artifacts will show how colored bodies support waste infrastructures and how colonial power dynamics have endured temporally and materially (Parikka, 2016; Rossiter, 2016), from colonial networks to the here and now of globalized capitalism.

This focus on temporality is significant to infrastructural studies, which often prioritizes the spatial sprawl of network creation. Appel, Anand, and Gupta (2018) argue that the turn to temporality brings attention to how time "produces variegated forms of spatiality and particular patterns of sociality" (p. 17). Moreover, infrastructures are important "not just for what they do in the here and now, but for what they signify about the future" (Appel et al., 2018, p. 19). In this article, I consider how multiple temporalities of violence haunt the lives of laborers in both material and digital waste circuits, as represented through artworks critiquing the phenomena. By placing the focus on waste<sup>1</sup> infrastructure, this study builds on my earlier work on the "necropolitics of digital culture" (Wan, 2019, p. 249) through a temporal perspective, and shows the colonial dimensions of global network spaces. Necropolitics refers to "the politics of death and dispossession that comes with the extraction of a population's labour and reproductive power" (Wan, 2019, p. 251). The temporal emphasis, specifically on duration, rhythm, and the future-oriented reflection of the aftermath of waste, brings attention to how necropower is experienced by the laborers of waste processing in Asia and how their dispossession unfolds temporally. This article, therefore, contributes to the growing media theoretical discourse surrounding the structural inequalities and uneven circuits of labor and biopower that constitute our networked lives (for instance, Beer, 2016; Couldry & Mejias, 2019; Gillespie, 2018; Qiu, 2016).

It is commonly accepted that waste flows from "developed" nations to "developing" nations, generating the discourse of toxic waste colonialism critiqued through the environmental justice perspective (for instance, Maxwell & Miller, 2012; Menon, 2018). However, Asia also participates in the generation of e-waste and techno-trash, complicating the narrative of waste circuits in their multidirectional flows across national borders and geographical zones.<sup>2</sup> In framing this Special Section, Hoyng argues that waste networks expose the liminal spaces in our digital infrastructure as unwanted excess that exposes the limits of control.

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<sup>1</sup> See, for example, Dutton, Seth, and Gandhi (2002), which discusses how waste features in the larger critical field of postcolonial theory.

<sup>2</sup> E-waste into China and India are sometimes imported as second-hand goods or donations, which adds to the statistics that Asia is itself producing a lot of e-waste (Awasthi & Li, 2017). For an overview of global e-waste management problem, see Forti, Baldé, Kuehr, and Bel (2020).

While developing nations like China grapple with growing e-waste generation problems within the countries themselves, they are simultaneously dealing with the toxic aftermath of e-waste from “developed nations” discarded in past decades, yet unceasingly flowing in their water sources and soil supplies, affecting foods that they eat and drink.

But whereas the toxicity of material waste is evident, the problematics of “digital waste” has only recently come into view as yet another dimension in digital culture’s perpetuation of violence. Techno-trash processed by content moderators is marked by their travels across cultural boundaries, when, for instance, South Asians are tasked with deciding whether content created by users in other countries is permissible for the platforms of Facebook and YouTube (Ahmad, 2018). Content moderators are often young workers looking for jobs in the technology sector, recruited by business process outsourcing (BPO) firms, such as Accenture, Genpact, and Cognizant in India and the Philippines. The BPO industry boom took place back in 1980s and 1990s, when Western technology companies outsourced back-office operations such as call center customer service<sup>3</sup> to countries with “well-educated but considerably cheaper workforces” (Elliott & Parmar, 2020a, para. 5). Outsourced Facebook moderation, for instance, takes place at more than 20 sites worldwide, with more than 15,000 workers, but the company refused to confirm how many countries are involved (Barrett, 2020, p. 12).

In this article, I begin my exploration of e-waste through the photography series *disCONNEXION* by Xing Danwen (2002–2003), and digital waste through the documentaries *The Moderators* (Cassidy et al., 2017) and *The Cleaners* (Beetz et al., 2018). These three artifacts allow us to study this from the vantage point of three Asian countries. Selected empirical research on e-waste pollution in China and journalistic sources on content moderation in India and the Philippines are also brought in to contextualize and substantiate the accounts represented. These cultural texts are chosen for their critique on waste and are brought into conversation with the twin concepts of slow violence (Nixon, 2011) and slow death (Berlant, 2011), to show how digital infrastructure, the focus of this Special Section, needs to be considered also in its temporal form.

### **Duration: Material Waste Networks and Slow Violence**

It is not news that waste networks demonstrate the persistence of colonial logic in its racialized disregard for lives elsewhere. Zygmunt Bauman’s (2004) *Wasted Lives* designates waste as a hallmark of modernity and progress, where certain bodies must become trash collectors and recyclers for the engines of modernity to continue running. Progress, in his terms, is marked by the desire for newer objects, which in turn leads to the banishing of obsolete and undesired items to the dump. Bauman (2004) observes the persistent materiality of waste dumps that are “reluctant to degrade, deteriorate and decompose on their own, as well as being resistant, nay immune, to solvents” (p. 2). This description rings particularly true in the context of e-waste. From a temporal perspective, we can see how the toxicity of material e-waste performs in digital infrastructure as durational matter that persists through time.

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<sup>3</sup> See Padios (2018) for an incisive analysis of call center work in the Philippines.

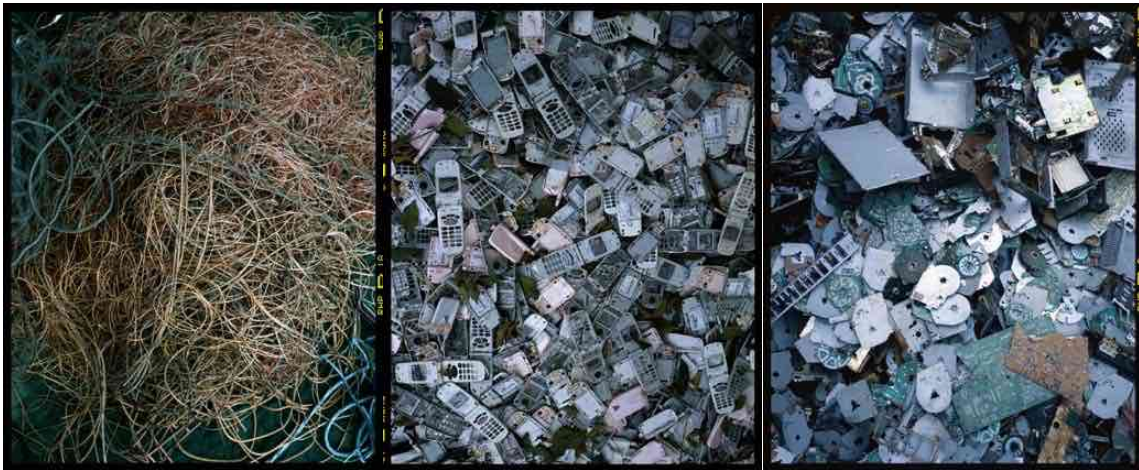
This toxic duration of waste can be contextualized through Nixon's (2011) work on "slow violence" (p. 2). Nixon (2011) addresses the "inattention to calamities that are slow and long lasting, calamities that patiently dispense their devastation while remaining outside our flickering attention spans—and outside the purview of a spectacle-driven corporate media" (p. 6).

Slow violence is defined as "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, p. 2). This different kind of violence is incremental and accretive, with repercussions playing out across a range of temporal scales; some take years to develop, others decades. Slow violence does not appeal to visual perception. Unlike bombs that go off and buildings that collapse, slow violence slowly unfolds through (environmental) disasters, like the radioactive aftermath of wars, toxicity accumulating through biomagnification, acidifying oceans, and climate change. Deaths are "long dyings" (Nixon, 2011, p. 2), both human and ecological. Indeed, the hazardous impact of e-waste processing on bodies is durational and attritional in nature, not to mention a type of violence that seems to be ongoing and therefore not-as-worthy of attention.

Compared with the spectacularity of large-scale disasters and terror attacks, durational violence occurs beyond our perceptual grasp. Nixon's (2011) work engages with the representational and narrative challenges posed by this invisibility of slow violence. To illustrate, he quotes the "slow-motion slaughter" (p. 14) in the Vietnam War, where the official statistic of 1.5 million deaths do not include those who survived the war, but died years later from the release of Agent Orange. Dioxins from Agent Orange continue to build up in fatty tissues of animals like duck and fish, which are passed onto humans when eaten.

Nixon's point is that it is difficult to administer the scale and proximity of nonspectacular violence, pointing out that we need another grammar and narrative that will help guide our attention to these cases of environmental injustices. Attempts may be found in artistic representations, such as Xing Danwen's photographic works from 2002–2003, which feature shots of discarded e-waste. I note here that the photographic form is an interesting medium to explore the persistence of this nonspectacular form of violence. The work recalls Roland Barthes' (1981) meditation on photography as the medium of death, characterized by "fatality" (p. 6) and the return of the dead through the image. To Barthes, the photograph is a "certificate of presence" (p. 87), which makes the past "as certain as the present" (p. 88).

Plastic-coated electronic wires curled up and entangled lifelessly, mobile flip phones in various states of disuse and abandonment, piles of circuit boards carelessly strewn across the photographic image—the death of these objects is captured and marked by the name *disCONNEXION* (see Figure 2). Xing took photos of mounds of industrial e-waste from her fieldwork in the Guangdong province where local and migrant workers at the time sorted trash without proper knowledge on processing nor protection from toxic substances.



**Figure 2. Photos from disCONNECTION (Xing Danwen, 2002–2003).**

By aesthetically abstracting the objects out of their contexts, the artist created almost timeless images of e-waste; the age of these photos is only betrayed by the identifiable models of flip phones. I opt to bring into the discussion a series from more than a decade ago, not only because it was received with critical acclaim but because looking at the photographs again in the present invite us to wonder and imagine what in fact has happened to the objects in the photos, and what has happened to the absent workers who sorted them. These photos are testament to the persistent nature of the solid materials, as well as the durational presence of the toxicities and pollution they create, bearing witness to the fruits of the labor while staying silent on what happened to the local and migrant workers.

The invisibility of these workers could be seen in parallel to the relative invisibility and long-durational violence they suffer through exposure to toxic e-waste. Xing visited townships in the Guangdong province, and in the 2000s, Guiyu was one of the foremost notorious dumping grounds of e-waste in the world and became “a symbol of the environmental devastation caused by recycling hazardous waste with little regulation” (Stanway, 2018, para. 16). The situation only improved for residents when the provincial government created formal and legal processing plants in 2013.<sup>4</sup> Before that, there were more than 5,000 family-run “recycling” workshops in operation, and the town smelled strongly of the hydrochloric acid used to wash metal and waste, and the air left a burning sensation in the eyes and in the nostrils.

The levels of toxicity from e-waste processing are reflected in various studies of Guiyu, and these problems persist despite the effort to clean up and create formal arrangements of processing. A 2003 Zhongshan University–Greenpeace investigation took the form of an ethnographic study of Guiyu to reveal the attitudes of locals toward the e-waste industry (“Ethnographic Research Report,” 2003). The interviewers noted that the locals were reluctant to admit the toxic reality they were living in. Instead, they reiterated the need for income and the desire to prioritize this above their health and the pollution of the

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<sup>4</sup> In 1996, the Chinese government “officially” banned the importation of e-waste, but the ban was not enforced properly until the 2010s.

town ("Ethnographic Research Report," 2003, p. 18). The slow violence of these effects took long to materialize and to become recognized by the locals—only in March 2016 did citizens in the region protest against the construction of a waste incineration plant, this time pointing to the devastating cancer statistics of the population as the aftermath of e-waste processing ("Guangdong Shantou Guiyu," 2016).

As exemplified by the "cancer villages" in the Guiyu region, the dangerous nature of e-waste processing has in fact stimulated studies that directly demonstrate the connection between informal e-waste economy and health and safety risks. Much of this research has stemmed from valuable contributions from global south scholars (in Asia, just to name a few; Annamalai, 2015; Khan, Basis, & Malik, 2019; Toxics Link, 2013), as well as the work of activist groups such as Basel Action Network, Greenpeace, Global E-waste Monitor, and PACE (Platform for Accelerating the Circular Economy), which sheds light on e-waste processing and smuggling, and promotes regulatory frameworks and green initiatives. In 2019, more than 80% of global e-waste generated disappeared into informal systems; a significant portion is believed to have ended up in developing countries (Forti et al., 2020), which signals the threat of a growing ungovernable e-waste problem.

The series *disCONNEXION*, which has been displayed in prestigious art museums globally, brings the third-world spaces of Chinese dumping grounds into the halls of Centre Pompidou in Paris, the Whitney Museum in New York, or the Sydney Art Biennale. As such, the work's circulation adds to its critique of the logic of e-waste disposal from the rich to the poor, encapsulated by the term "new international division of labor" (NIDL; Maxwell & Miller, 2012, p. 88) in the environmental justice discourse. Miller (2016) in particular suggests that global solidarity is necessary to stand with workers in developing countries who are "at the sharpest end" (p. 115) of NIDL and recognize their struggle for political rights while laboring under oppressive and dangerous circumstances (Chan, Pun, & Selden, 2013).

Indeed, workers endangered like those in Guiyu in the early 2000s are still found today in illegal e-waste processing in developing countries. For example, Indian activist group Toxics Link's (2019) study of informal e-waste workers in Delhi revealed their willingness to "override health and environment to make a living" (p. 58), an attitude that echoes those of Guiyu in the Greenpeace study. The slow violence of toxic exposure take time to unfold, and for those focused on making ends meet in the present, it seems to be a risk worth taking.

Yet toxic effects are still found decades after such illegal workshops close down. In 2013, Food and Drug Administration officials in the city of Guangzhou (400 kilometers away from Guiyu) found high levels of cadmium in rice and rice products, in samples pulled from local restaurants, university canteens, and shops (Watson, 2013). A 2014 study by Shantou University Medical College found that Guiyu children had high levels of lead in their blood, which could have a negative impact on development and intelligence (Zhuang, 2017). A 2019 report (Yu et al., 2019) recommends soil repair in former e-waste areas after processing plants have been closed down, as animal and plant life still suffer from e-waste toxins almost 20 years later.

The dumps and illegal processing captured by *disCONNEXION* remind us of the slow violence of e-waste, where heavy metals are leached daily into water sources and soils, threatening the safety of those

who or which inhabit such habitats.<sup>5</sup> The stubborn persistence of material waste extends in long durations across geographical boundaries, capturing “toxic colonialism” (Menon, 2018, p. 20) in its degrading materiality as “ruination” (Stoler, 2016, p. 350). As Stoler (2016) argues,

The social terrain on which colonial processes of ruination leave their material and mental marks are patterned by the social kinds those political systems produced, by the racial ontologies they called into being, and by the cumulative historical deficiencies certain populations are seen to embody—and the ongoing threats to the body politic associated with them. (p. 369)

The states of ruining do not signal an endpoint to the politics of postcolonial violence, but rather its continued persistence in duration, just like the timeless testimony of violence to which *disCONNEXION* bears witness. The Chinese title of the series (絕緣, *juéyuán*) literally translates to the state of insulation of these unplugged devices but can also playfully refer to the end of relations or relating, as the objects no longer offer connectivity. Yet despite the “death” of these objects, they continue their “long dyings” (Nixon, 2011, p. 2) as material toxicities affecting its relational web of soil, water, human and nonhuman inhabitants, enduring in its exertion of violence.

### **Rhythm: Clicking Through Digital Waste Networks**

While the toxicity of material waste speaks for itself, the toxic nature of digital waste is much less obvious. Current studies of digital waste networks reveal how laborers experience emotional distress and precarity in their positions as vital participants of the digital infrastructure. I rely in particular on the work of Sarah Roberts (who pioneers the subject in media studies), and the documentaries *The Moderators* (Cassidy et al., 2017) and *The Cleaners* (Beetz et al., 2018) as sources on the work of content moderation as a form of digital waste. Although digital content moderation may be automated algorithmically, the vast majority of digital content requires human intervention to decide on their appropriateness for specific platforms. Content moderators are human filters for violent or abusive imagery, such as war images (bombings, beheadings), injuries (bloody car accidents, stabbings), conflicts (such as police violence), self-harm (like suicide videos), and pornography (like pedophilic sex acts).

Time is of the essence—*The Cleaners* opens with the voiceover, “Delete. Ignore. Delete. Delete. Ignore” (Beetz et al., 2018, 00:00:07). This is a motif repeated in the documentary. The click of the mouse and the typing noise of keyboards permeate its soundtrack, as do the unmercifully bright glares of monitors. Suffering is durational as much as it is fast and episodic. The cycles of repetition and the need to make split-second decisions on permissibility create a painful constant reiteration of the process. The constant flow of text, image, and video constitutes a durational experience of heavy emotional labor, where the feelings of the moderators must themselves be moderated and closed off to do the job. Heavy mental stress is placed on

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<sup>5</sup> Other informal e-waste processing dumps exist in India, Pakistan, and Thailand. China’s increased regulation in the 2010s resulted in smuggling to neighboring countries where informal and unregulated processing could take place. See Phoonphongphiphat (2018).



their bodies, where one must maintain a distance and desensitize oneself to the horrors of the job. In *The Cleaners* (Beetz et al., 2018), interviews of Manilan moderators reveal that they go through up to 25,000 photos per day, and watch hours of video footage, citing the experience as damaging to the brain and to the psyche. They are not allowed to skip through videos and must watch them in full, because they are worried that they would be found out during the quality control process by their bosses. Skipping a video counts for an error, and they are only afforded three errors per month before being fired.

In a 2020 research in New Delhi conducted by Mint, a premium Indian business news outlet, content moderators expressed that they worked in front of a terminal for nine hours a day and reviewed up to 6,000 images with a maximum attention time of 4.5 seconds each. Those who worked for TikTok moderated between 4,000 and 5,000 videos a day. An interviewee, who worked for Facebook through Accenture, explained that the expected accuracy rate is 90%, but barely one of seven people could get that score. Those who are not close enough would be fired—"Attrition is high" (Banerjee, 2020, para. 15). In her office, a therapist was appointed, but was in charge of 300 employees. The therapist explained to the journalist that many moderators felt "worthless and hopeless about life and about the world" (Banerjee, 2020, para. 22).

With all its instantaneity, the globalized Internet requires an incredible amount of round-the-clock content. The 24/7 nature of the Internet results also in durational labor for content moderators. Content moderators are hired in various parts of the world (such as in the United States and Germany), but most of the work is outsourced to India and the Philippines, this itself an effect of English proficiency in the postcolonial countries. *The Moderators'* narrative structure (Cassidy et al., 2017) uses intertitles to indicate the passing of time from Monday to Friday while following a week-long training for moderators in India. The documentary also includes two lingering shots of the four clocks on the wall—Pacific Standard Time, Central European Time, Moscow Standard Time, Indian Standard Time (see Figure 3). These temporal markers visually anchor the repetitive nature of the work, the always-online nature of the Internet, and the demand it creates for durational content moderation work. Signal traffic peaks at different hours of the day around the globe—and creates a marathon for its moderators. One Indian interviewee states, "This is real-time work. Twenty crews of people every day around the clock, 1 million images we are moderating and nearly 5,000 profiles" (Cassidy et al., 2017, 00:14:56). The time standards remind viewers of the importance of temporality and of timeliness to content moderation work. In *The Cleaners* (Beetz et al., 2018), the moderators discuss how sick and sickening it is that they must watch violence unfold in real time in live videos streamed and broadcasted on Facebook, because they are not allowed to intervene until the actual moment of harm or violence that pushes the video past the permissible threshold of the guidelines. As a result, they must sit and watch as a given individual, for instance, attempts suicide live.



**Figure 3. Screenshot of four clocks in a content moderation office in *The Moderators* (Cassidy et al., 2017, 00:14:44).**

The emotional toll of content moderation work develops over time. In *The Cleaners* (Beetz et al., 2018), one interviewee in Manila becomes an expert in ISIS and drug cartel beheadings and begins to narrate disturbingly intricate details of what knife type and what cutting motion would result in specific types of neck wounds. A fellow worker who suffered serious emotional distress committed suicide, and he worked as a moderator specializing in self-harm videos. The agency in charge kept the suicide under wraps but did not devise further structures of support for existing employees.

In an interview by tech journalism platform *Rest of World*, an Indian content moderator by the pseudonym of Rahul describes the experience of becoming desensitized to the horrors on his screen—"It gets to a point where you can eat your lunch while watching a video of someone dying. . . . But at the end of the day, you still have to be human" (Elliott & Parmar, 2020a, para. 16). A Filipino moderator under the pseudonym of Rafael opted for therapy out of his own pocket, haunted by the images he saw at work—"The deep seething thought will haunt you; it will creep you out. . . . It's impossible that it wouldn't, because I saw it; it's already recorded in my mind" (Elliott & Parmar, 2020a, para. 24). Their accounts echo the sentiments and emotional anguish of interviewees in *The Cleaners* (Beetz et al., 2018) over the psychological demands of the job.

Here I evoke Berlant's (2011) term "slow death" (p. 95) to discuss the invisible violence endured by waged laborers under formal arrangements of work in an uneventful form. This concept frames content moderation as work that exhausts bodies and reduces the possibilities for them to thrive and move toward a better future. The concept of slow death is situated in Berlant's (2011) monograph-length meditation on cruel optimism, where Berlant discusses why people are attached to the idea of the forever-delayed promise

of a "good life" despite its unattainability (p. 2). This promise could take the form of upward mobility, better future, better health, or anything that defines the fantasy for an individual. Berlant suggests that failing to fulfill these goals is not a matter of bad luck but rather a general phenomenon of systematic failure. Slow death highlights the predicament of the working poor, whose work does not offer possibilities of upward mobility, but may in fact subject their bodies to forms of decay.

The uneventfulness of "slow death" may be compared with slow violence's nonspectacularity, where the operations of power and subjugation become difficult to notice, to detect. As Berlant (2011) writes,

Slow death prospers not in traumatic events, as discrete time-framed phenomena like military encounters and genocides can appear to do, but in temporally labile environments whose qualities and whose contours in time and space are often identified with the presentness of ordinariness itself. (p. 100)

Cruel optimism is about the unattainability of a better future and the trappings of the present. One gets into such a situation initially out of the hope of betterment, but it does not lead to the promised land. Even though work like content moderation may offer steady income, workers are inevitably exposing themselves to unsafe working conditions and emotional vulnerabilities. This precarity is also structurally produced. Mylene Cabalona, president of Filipino BPO Industry Employees Network, told *Rest of World* journalists that companies kept employees in check by making them feel "disposable" (Elliott & Parmar, 2020a, para. 32). They were often told that poor performance would mean that the platforms would pull out of the Philippines and take the work to another country.

Trapped in the cruel optimism of content moderation work, laborers are susceptible to mental illnesses and secondary trauma. But to have a job as a content moderator in Manila offers the promise of a better life. In the *Rest of World* article referenced above, the Filipino interviewee Rafael opted for content moderation work to advance his writing and journalistic career (he also had writing gigs with the same BPO agency), while the Indian interviewee Rahul joined because he wanted to be part of Facebook. In *The Cleaners* (Beetz et al., 2018), a Filipino interviewee is seen bringing home groceries to support his family, and expresses that his family does not know what he does for a living and what he has to endure on the job. Yet he is willing to stay on, because he has to be the breadwinner. The emotional stress of having to experience the unpleasant images and videos is seen by the rate of turnover in some agencies, yet there are always more (young) people looking for work. In *The Moderators* (Cassidy et al., 2017), the directors show that in India there is an unending demand for workers and an unending pool of people eager to sign up. Many want to build job experience in the IT industry, without realizing the risks of emotional stress.

Even though these are wage laborers, their livelihoods as moderators are not in fact safe nor safeguarded through ethics of care, especially in the domain of mental health.<sup>6</sup> Holding down a job seemingly holds promise for the future, but the job itself actually actively impedes the possibilities for betterment, and instead repeatedly subjects the body to series of trauma and mental stress. The rhythm of repetition of distressing images flashing before one's eyes, the rhythm of shift labor 24/7, the duration of discomfort,

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<sup>6</sup> See Elliott and Parmar (2020a) for more details.

stress, and of cruel optimism suffuse the work of moderation. The speed of clicking and the slowness of death colonize the present, as digital waste infrastructure performs these temporalities of violence.

### **Time and Time Again: Necropolitical Implications**

Parks and Starosielski (2015) have pointed out that global Internet infrastructure functions on work outsourcing to “[sustain] the distribution of audiovisual signal traffic on global, national, and local scales” (p. 5). Studying the circuits of e-waste and digital waste, one maps an infrastructure of waste management that banishes undesired waste into Othered worlds.

Focusing on rhythm and duration, my discussion above on slow violence and slow death demonstrates the abuse, violence, and death imposed on certain populations where their lives are considered to be of lesser value in service to the capitalist machinery. This colonial logic, alongside its temporal violence, could be framed as part of the “necropolitics of digital culture” (Wan, 2019, p. 250), a concept I built vis-à-vis Achille Mbembe (2003) and Elizabeth Povinelli (2016). I use the term to critique the exploitation of laboring bodies in global digital infrastructure in the domain of mining in the global South, in an analysis focusing on the bio- and necropolitical extraction of productive power from colored bodies in Congo and Australia. Because of the mineral trade, communities experience varying levels of physical violence, destruction of livelihoods, and blows to their cultural heritage through loss of totemic landmarks. The blood minerals extracted are essential to the sustenance of global digital infrastructure.

Digital waste infrastructure is also embedded in the “necropolitics of digital culture” (Wan, 2019, p. 250) that affects particular postcolonial subjects, like the Filipino and Indian content moderators. Echoing Berlant, Filipino scholar Neferti Tadiar (2004) diagnoses this type of labor performed by Filipinos as “fantasy-production” (p. 6). Fantasy-production refers to the dreaming and desiring actions of those whose biopower is captured through labor in the capitalist world system, that in fact promotes the status quo and keeps them trapped in their unreachable fantasies. Laborers in fantasy-production “fuel and further the logics of the dominant global order” (Tadiar, 2004, p. 7). In this case, they are trapped in lowly labor on the back end of digital infrastructure, suspended in the impossibilities of moving upward and ahead in the rungs of ICT labor. To Tadiar (2004) this suspension in progression constitutes the trappings of an “alien modernity” (p. 2) that reflect on the country’s positionality—the Philippines is itself caught in the impasse of postcoloniality in the world order, that when globalization arrives at its doorsteps, it offers little more than a mere dream of progress. Marte-Wood and Santos (2020) also point to the framing of content moderation work in the Philippines as a much-desired development to keep Filipino workers at home, rather than the mass exodus abroad to look for better alternatives. Quoting Padios’s (2018) concept of “Filipino/American relatability” (p. 5), they dissect how U.S. platforms appeal to Filipinos and provide added value and attraction, as affinity with and admiration for the United States is deep-rooted in Filipino identity as a legacy of U.S. occupation and colonialism. In a related study, Breslow (2018) focuses on how this former colonial relation justifies content moderation work to be “‘best placed’ in the Philippines,” (p. 4) thereby facilitating and sustaining the “digital life of coloniality” (p. 4).

As mentioned, the relative ease of recruiting Filipino or Indian workers into content moderation work is premised on their English language capacities, a postcolonial legacy of U.S. occupation and British colonization respectively. Such capabilities allow these countries to be a supplier of global labor for the digital world, but at

the same time keeps them in the hegemony of the global status quo. Marte-Wood and Santos (2020) also suggest that content moderation work exposes "Filipino care as a transnational exportable commodity" (00:09:35) and "remediates" (00:23:48) care work (epitomized by overseas Filipino workers in domestic help, nursing, and teaching jobs) into digital forms. We see here a reflection of Asia's subaltern state in the networks of biopower and necropower that fix and keep in place its subordination against the so-called developed West. Despite its connectivity and immediate access to the rest of the world, digital infrastructure takes on the character of colonial capitalist exploitation. It may collapse the world's distances in its instantaneous synchronous networks, but it upholds the existing capitalistic order, overlaid by the temporal remains of colonialism.

One final point of analysis on the persistence of colonial temporalities remains: that of its future. To think through this, I refer to what Césaire (1995) has called the "boomerang effect" of colonization (p. 167). In it, he argues that colonization dehumanizes the civilized man to the point where in his habit to see the Other as an animal, "accustoms himself to treating him like an animal, and tends objectively to transform *himself* into an animal" (Césaire, 1995, p. 167). This transformation means that colonization's poison does not only affect the Other but also the first-world self. This perspective is often explained through how the concentration camps in World War II are in fact repetitions and extensions of inhuman practices already administered in the colonies (Mbembe, 2003; Povinelli, 2016). The "boomerang effect" denotes "the way in which empires use their colonies as laboratories for methods of counter-insurgency, social control and repression, methods which can then be brought back to the imperial metropolis and deployed against the marginalised, subjugated and subaltern within" (Woodman, 2020, para. 3). Past violence committed in the colonies would return in a future moment in a different form to oppressed populations within the empire. Césaire's (1995) point emphasizes the nonlinear time effects of colonial temporality, and the return of violence to the "first world" as a result of toxic colonialism.

This temporality of the boomerang suggests that Asia is perhaps a current test case that signals at ongoing and future circulations of violence, the effects of which are also experienced by e-waste destinations in Africa and Latin America (Forti et al., 2020). It is a question for the present and future as to what recirculates back to the so-called first world, whether through biomagnification that affects animals and plants and therefore generates unsafe food sources for the world, or through imported goods and products that are in fact laced with toxicities of e-waste disposal. Toxins also travel and disperse through geography regardless of socioeconomic divides. Through the lens of slowness and duration and through deeper time scales, one could see that the biopolitical calculus and the logics of dumping does not follow a first-world to third-world trajectory, but rather returns to haunt the first-world self with the excesses of waste. This, for instance, can already be illuminated through a case study of Hong Kong's production and management of e-waste as its border zones have become a major destination for illegal e-waste due to its proximity to the Chinese border and black-market refugee labor (Hoyng, 2018). Additionally, e-waste is often pushed into the nongovernable spaces of the black market (Hoyng, 2018; Rossiter, 2016) and "disappears" into smuggling circuits. Hoyng (2019) argues that e-waste is a "a reminder of the persistent lack of control" as "transient matter that [transforms] as it circulates globally and enters into different relations" ("Mining Data," para. 5). Informal and illegal circuits of waste processing put the health of human and nonhuman lives at risk, whether in Asia, Africa, or Latin America, or in vulnerable black markets of developed nations.

The boomerang effect of colonial temporality suggests that the history of the present of the colonized will return to haunt the future of the first world. Even when circuits today could be highlighted through a focus on the geographical area of Asia, in reality, this speaks to a larger problematic of precarious labor in various pockets of the world. From the perspective of digital waste, the boomerang effect is already in existence, as precarious labor of content moderation, while mostly outsourced, is also found within the corners of developed nations like Europe and the United States.<sup>7</sup> The demand exceeds the established supply of lowly-waged labor provided by developing nations, partly due to the always-online nature, around-the-clock temporal demand of Internet platforms, and partly due to the need for language-dependent moderation. But this poorly compensated work would in a similar vein go to those whose lives are considered less valuable within the boundaries of developed nations. This phenomenon could be encapsulated by Boaventura de Sousa Santos's (2016) characterization of the "epistemologies of the south" (p. 18), referring to those who do not live in the global South but nonetheless experiences similar exploitation.<sup>8</sup>

### Concluding Remarks

In closing, let me emphasize the durational nature of colonial violence in global digital infrastructures. The circulatory networks of waste in digital culture today place certain bodies at risk in its racialized logic in global labor. Today's digital world thrives amidst the genealogies of material and digital dispossession stemming from colonization and imperialism and is activated through the temporal persistence of such structures. As Stoler (2016) writes, "The geopolitical and spatial distribution of inequities cast across our world today are not simply mimetic versions of earlier imperial incarnations but refashioned and sometimes opaque and oblique reworkings of them" (pp. 4–5).

One might think of the global technological infrastructure as a kind of "ruins of empire" or "the toxins of imperial debris" (Stoler, 2016, p. 5)—especially for those stuck in the loops of toxic circulation in waste infrastructures. We still live in the temporal legacies of colonialism and it is far from over. Certain Asian lives, among others in the global and epistemic south, have been cast as "dispensable citizens" (Nixon, 2011, p. 17), suffering the blows of slow violence and slow death.

Electronic and digital waste networks are necessarily global in reach, as discarded devices travel to e-waste dumps in Asia and elsewhere, and as content moderators in specific locations determine the threshold of permissibility of images and videos on globalized platforms. We see the value of life being unevenly distributed across the world, following a colonial logic that has been in place for centuries. In the present case, "surplus human life" (Tadiar, 2013, p. 27) in Asia serves as the disposable labor and "risk-absorbing collateral" (Tadiar, 2013, p. 27) for the global digital economy. The devalued surplus life is

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<sup>7</sup> See, for instance, the equally horrific account of content moderators in, for example, Berlin in Punsmann (2018) and Modderkolk, Kreling, and Duin (2018).

<sup>8</sup> There is, however, hope that change might slowly take place. In a landmark 2020 U.S. class action lawsuit, Facebook would pay US\$52 million in settlement with U.S.-based moderators in California, Arizona, Texas, and Florida to compensate for psychological counseling. See Newton (2020) and Lerman and Greene (2020). This is only a small victory for those hired in these states, for there is little indication that tech companies would take responsibility for outsourced laborers globally.

explicitly classed, racialized, and ethnicized. The outsourced labor that composes the underbelly of our networked existence reveals the postcolonial dimensions of electronic and digital waste infrastructure, demonstrating the “tangibilities of empire as effective histories of the present” (Stoler, 2016, p. 378) running real-time in the midst of our connected, networked lives.

Dumping waste, digital and material, in parts of Asia continues a long history of colonial thinking—that certain lives elsewhere are disposable and replaceable—and reminds us of the shadows cast over our digital infrastructures by colonialism. Moreover, it continues from a longer trajectory of colonial thinking where the racialized Other is considered unclean and dirty (Anderson, 2010). Othered parts of the world become literally and figuratively the “white man’s waste bin” (Beisel & Schneider, 2012, p. 644), where even digital waste also comes to figure as a mode of exploitation of Othered bodies. Tracing these material and digital networks of waste recognizes the postcolonial inequalities that structure the seamless connectivity of digital culture and challenges the “current received history of media in the West” (Shome, 2016, p. 246). As such, the study of waste infrastructures poses what Shome (2016) terms a “postcolonial interruption” (p. 247) to the discourse of Western(ized) media theory. This article thinks through these cultural artefacts about Asia to bring into focus the problematics of global labor, and the colonial temporalities of durational violence inflicted on dispossessed bodies in our digital networks. As de Sousa Santos’s (2016) epistemologies of the south suggest, “The Western-centric conception of humanity is not possible without a concept of sub-humanity (a set of human groups that are not fully human, be they slaves, women, indigenous peoples, migrant workers, Muslims)” (p. 21).

Despite their “disposability” as subhumans in the global capitalist logic, content moderation work is crucial to the operation of platforms as “custodians” of the Internet (Gillespie, 2018, p. 5). Roberts (2019) sees no real end to this type of job in the near future, as artificial intelligence still falls short of the demands of the tasks. Instead, she foresees that

[the laborers] will be asked to make increasingly sophisticated decisions and will often be asked to do so under challenging productivity metrics that demand speed, accuracy, and resiliency of spirit, even when confronted by some of humanity’s worst expressions of itself. (Roberts, 2019, p. 209)

Some interviewees in *The Cleaners* (Beetz et al., 2018), *The Moderators* (Cassidy et al., 2017), as well as those interviewed by Roberts (2019) have expressed that they see their work as crucial and unmissable. In Roberts’s (2019) ethnographical study, interviewees reveal their “sense of protecting users from seeing or experiencing harm” (p. 209). Some see themselves as preventers and protectors (Beetz et al., 2018). On one hand, they are essential workers<sup>9</sup> who keep the Internet clean and running, but on the other, they are disposable cleaners, comparable with the trash collectors of e-waste. What they clean is just as toxic, just as

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<sup>9</sup> In May 2020, during the COVID-19 pandemic, Facebook provided financial incentive to content moderators to return to the offices for work. Similarly in July, Indian content moderators in Hyderabad were asked to return to the offices as the infections were surging in India. Because of sensitive content, the work had to be done in-house and could not be remotely accessed in a work-from-home setting. See Lerman and Greene, (2020) and Elliot and Parmar (2020b).

bad for their health, albeit in a different form. As of 2020, there are no publicly available longitudinal studies that investigate the long-term psychological effects of content moderation.

The precarity of labor in the form of waste management, whether material or digital, depends on dispossessed bodies who bear the largest risks of toxic exposure or mental health breakdown. As observed by Nakamura and Chow-White (2012), "no matter how 'digital' we become" (p. 1), problems of social inequalities organized along racial lines, among others, persist. Without proper safeguards and regulations to tackle the issues of waste processing, material and digital, the rhythms and durations of colonial violence will continue to haunt our globalized world.

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