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# Obsolesce

MARGARET RONDA

“There should be more nouns / For objects put to sleep / Against their will,” begins “Phone Booth,” a recent poem by Brenda Hillman that meditates on the lost pleasures of the phone booth.<sup>1</sup> These opening lines rue the impoverishment of our vocabulary for describing what happens to objects and materials that have been “put to sleep” before they are worn out and what remains of their obdurate, even “will[ful]” presence as they are rendered inactive by market forces or consumer whim. This not-yet-created language must account, Hillman suggests, not only for the complex material changes these objects undergo as they are placed into disuse but for the concomitant shifts in everyday phenomenological experience as new commodities and technologies replace older forms. It is this latter aspect that “Phone Booth” takes up, considering various dimensions of the phone booth as it once functioned in everyday life and its supersession by the cell phone. Exploring yet another turning point in what Walter Benjamin calls the “increasing atrophy of experience” that accompanies technological innovation under capitalism, Hillman’s poem undertakes a retrospective, symbolic revaluation of a now-superseded technology and the slower, more ruminative encounters it afforded.<sup>2</sup> “We twisted the rigid cord / As we spoke / It made a kind of whorl,” the poem ends, wistfully.

“Phone Booth” also points, in intriguing if undeveloped fashion, toward a continuing trajectory of the commodity as it is made to disappear from everyday use. Hillman’s phrase “put to sleep” evokes a kind of spell cast on the object to render it outmoded. The mystical, fairy-tale-like

language of this phrase echoes, in reverse, Karl Marx's description of the dynamic transfiguration that occurs to an object as it assumes the form of the commodity. As Marx writes in *Capital*:

But as soon as it emerges as a commodity, it changes into a thing that transcends sensuousness. It not only stands with its feet on the ground, but, in relation to all other commodities, it stands on its head, and evolves out of its wooden brain grotesque ideas, far more wonderful than if it were to begin dancing of its own free will.<sup>3</sup>

The objects Hillman describes are not awakened into a new, topsy-turvy form but instead cast into a premature slumber. Yet in both cases, the object is transfigured into something strange—what Marx calls “suprasensible.”<sup>4</sup> We might see Hillman's poem as pointing to the *end* of the process of commodification that Marx describes in *Capital*: the no-longer-circulating commodity can finally rest, “put to sleep” after its uncanny awakening. Its *social* life seems to end, as it begins, with a determination that inheres not in its use-value but its position within larger relations of production.<sup>5</sup> Hillman intimates, however, that this is not the end of the tale but another chapter, one that requires a new vocabulary. We need a richer language, she claims, for charting these commodity forms as they slowly alter into something unrecognizable—as they *obsolesce*.

The abstract injunction placed on the artifact so that it is framed as no longer significant, able to be forgotten, is of course a key productive logic of capitalism. The innovative advances that drive growth and the pursuit of profit in capitalist economies ineluctably create obsolescence in various forms, from “built-in” obsolescence in technological and other consumer products to outdated forms of industrial infrastructure. Tied to the dynamics of commodity production and circulation, the logic of obsolescence highlights the essential quality of “creative destruction” in capitalist economies. As Joseph Schumpeter writes in his 1942 work *Capitalism, Socialism, and Democracy*, “The fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumers' goods, the new methods of production and transportation, the new markets, the new forms of industrial organization that capitalist enterprise creates.”<sup>6</sup> This ceaseless innovation, Schumpeter argues, “incessantly revolutionizes the economic structure *from within*, incessantly destroying the

old one, incessantly creating a new one.” As we will see in the following section, which highlights the rise of obsolescence as a method of staving off overproduction and generating new growth after World War II, obsolescence necessitates not only the foreshortened duration of a product—often cheaply made, quickly superseded—but a consumer sensibility oriented toward the new and disdainful of the outmoded. Describing this new “rhythm of consumer life,” Arjun Appadurai writes that it requires new affective and imaginative practices that undertake “the social discipline of the imagination, the discipline of learning to link fantasy and nostalgia to the desire for new bundles of commodities.”<sup>7</sup> Obsolescence as a productive logic thus involves both a supply-side and a demand-side dimension, profit strategy and consumer ideology working in sync.

In all these senses, obsolescence entails a strategic evacuation of value, social circulation, and formal recognizability. Hillman’s insight that we lack words for what happens to outmoded goods reveals the extent to which this process is characterized, for the consumer, by negation and erasure. With the introduction of the new commodity, the consumer is “disciplined,” in Appadurai’s phrase, to regard the older version as worthless and disposable. Hillman’s poem evokes this shift as sudden and culturally pervasive:

One day we started to race past  
 & others started racing  
 Holding phones to their ears  
 Holding a personal string  
 To their lips<sup>8</sup>

As these lines describe, the newer product is often associated not only with greater ease, efficiency, or beauty, but with increased speed. Older means slower, clunkier; newness promises mobility, lightness, seamless interface. The heavy “whorl” of the cord attaching the phone to its rooted circuitry is replaced by the “personal string” invisibly connecting the active speaker with a communications network. Left behind, the cast-off good falls prey to what Michael Thompson, in his groundbreaking study of the anthropology of waste, *Rubbish Theory* (1979), calls “a conspiracy of blindness.”<sup>9</sup> This “blindness” is not only a consumer orientation, generated and maintained by market strategems, but also a wider set of

relations with regard to the storage, transport, management, and disposal of these goods. Consigned to the landfill, moldering in attics, or sent overseas to be “recycled,” these materials lose salience in their prior configuration as first-order commodity but importantly *remain*. Some retain a semblance of their former shape and function; others are reworked into new forms in order to wrest more value. Reminiscent of the spiraling motions of the “whorl” that Hillman evokes in her poem, these various materials enter into newly proliferating cycles beyond their appearance and use.

To attend to the socioecological activity of *obsolescing* thus necessitates thinking against the grain of this economic logic that would consign the obsolete material to invisibility and considering what happens next. As a commodity falls into disuse, how might we understand its modes of existence and its larger impacts as it undergoes transformation? From these remaindered, disordered forms, what new aggregates or extracts might be found? What do these materials reveal about the larger dynamics that foster them and the sites, spaces, and practices developed to manage them? In this chapter I consider how obsolescing indexes, in distinctive ways, the complex relations between economy and ecology organized by the concept of *second nature*. I argue that obsolescing does not always exemplify the endgame of the capital accumulation process but can also embody another phase of its productive relations, one that reflects many of its most exploitative features. Differentiating obsolescing from the larger category of waste, I claim that obsolescing remains tied to capitalism’s ongoing pursuit of value. Yet obsolescing also illuminates the uneven temporalities and unintended ecological consequences that accompany this pursuit. Following the trajectory of obsolescing, I examine the ways material cast-offs of a given present convey essential insights into the historicity of this present beyond or below its progressive motions. As Theodor Adorno writes in *Minima Moralia*, “In an order which liquidates the modern as backward, this backwardness, once condemned, can be invested with the truth over which the historical process obliviously rolls.”<sup>10</sup>

### “Just Throw It Out the Window / Onto Somebody Else”

In the opening of his best-selling 1960 book, *The Waste Makers*, Vance Packard offers a satirical vision of Cornucopia City, a future paradise of

consumerism. Cornucopia City produces myriad consumer goods meant to be quickly replaced, such as cars “made of a lightweight plastic that develops fatigue and begins to melt if driven more than four thousand miles.”<sup>11</sup> Unveiled alongside these marvels of design is an entire infrastructure for quick disposal: a mart full of “receptacles where the people can dispose of the old-fashioned products they bought on a previous shopping trip,” factories on a cliffside that toss unneeded products “directly to their graveyard,” and weekly “Navy Days” where a warship is stocked with a variety of surplus goods—“playsuits, cake mix, vacuum cleaners, and trampolines”—to dump in the sea.<sup>12</sup> Organized entirely around harmonious cycles of production, circulation, consumption, and disposability, Cornucopia City is revealed to be the hopeful dream of “marketing experts” who fear the “haunting problem of saturation” in the booming postwar American economy. This is, of course, a problem endemic to capitalist productive relations, as Marx and Engels point out in their 1848 *Communist Manifesto*: “In these crises, there breaks out an epidemic that, in all earlier epochs, would have seemed an absurdity—the epidemic of over-production.”<sup>13</sup> These crises are temporarily overcome, according to Marx and Engels, by “enforced destruction of a mass of productive forces” and “the conquest of new markets.” For his part, Packard identifies the postwar turn toward planned obsolescence and an intensifying ethos of disposability as following these strategies in order to forestall such an epidemic.<sup>14</sup> The developments of Cornucopia City were already well underway in 1950s American consumer capitalism, Packard argues, creating a culture of profligate and seemingly isolated “waste-makers.” Mid-century American poet Lorine Niedecker describes this sensibility as the “Time’s buying sickness,” accompanied by heedless waste: “needn’t clean anything,” she notes sardonically, “just throw it out the window / onto somebody else.”<sup>15</sup>

As an economic strategy, obsolescence comes into its own amid the postwar economic growth that Niedecker and Packard chronicle and becomes an increasingly central organizing principle of commodity production in the global economy by the late twentieth century. The idea is often traced to economist Bernard London’s 1932 idea for ending the Great Depression. London argues for an expiration date to be added to products and a system of taxes created to spur consumers not to reuse goods that are “legally dead.”<sup>16</sup> As Packard’s book makes vividly clear,

London's idea, while never adopted in law or tax code, becomes general practice in postwar American product development and marketing, employed with relation to goods ranging from cars to household appliances to fashion items. Disposability becomes increasingly built into consumer goods to encourage repeat buying, and many products are made not for durability but for limited use, with features designed to break down or lose functionality. Industrial designer Brooks Stevens popularized the concept in the early 1950s, arguing that "our whole economy is built on planned obsolescence. . . . We make good products, we induce people to buy them, and then next year we deliberately introduce something that will make those products old fashioned, out of date, obsolete."<sup>17</sup> A potential feature of virtually any commodity (excepting those of wholly organic composition), obsolescence becomes most centrally associated with electronics and technological products in the shift, by the mid-1960s, toward an "information society."<sup>18</sup> In *Made to Break: Technology and Obsolescence in America*, Giles Slade details the accelerating technological innovations in hardware and circuits that produced new products, from digital watches to computers, leading to unprecedented levels of product turnover. "By 1965," he writes, "the ground was prepared for America's e-waste crisis."<sup>19</sup> Today, computers and cell phones might be placed at the head of a long list of products oriented by the command to obsolesce.

Part of the disconcerting quality of these materials, as Packard's startling descriptions of Cornucopia City's untouched or barely used goods dumped on land and sea suggest, is that they appear to *resist* the decompositional qualities of waste. They often maintain their shape, texture, and utility after they have been discarded, largely because of their industrially produced, synthetic composition—made to break, but not to *break down*.<sup>20</sup> As Michael Thompson writes, "One of the most striking features of rubbish is that we all instantly recognize it when we see it, hear it, read it, smell it, or, horror of horrors, touch it. . . . Just as dogs are undoubtedly dogs, so rubbish is undoubtedly rubbish. There are no questions of degree."<sup>21</sup> By contrast, obsolescing materials seem to occupy a strange middle ground. This median category is exemplified in portrayals of obsolescing materials that highlight their identifiable shape, from Packard's description of "millions of tons of motorcars, refrigerators, alarm clocks, and metal play wagons cluttering attics and landscape" and "in town dumps or wayside gullies," to the old videocassettes and Zippo

lighters in the 2008 Pixar film *WALL-E*.<sup>22</sup> These portrayals reveal a *different* sense of “matter out of place” than Mary Douglas’s key anthropological definition of dirt, drawn on by various scholars of waste studies—matter still imbued with the uncanny, lively qualities of the commodity that Marx describes.<sup>23</sup> To observe these materials in their obsolescing condition is thus to confront the limit of an idea of virtuous return to the soil; rather than disappearing, they linger in *undead* form. In their lingering, they embody what Adorno calls *ciphers*, where nature and history dialectically interfuse as second nature.<sup>24</sup>

## Second Nature

Second nature as a historical–materialist concept first emerges in Georg Lukács’ 1914 *The Theory of the Novel* and is taken up not only in his subsequent work on reification but in the negative dialectics of Adorno and Benjamin, who each turn toward “ruins and fragments” to discern the hidden history of the present. For Lukács, second nature emerges from the distortions endemic to capitalist society that obscure the objective nature of social relations. If *reification* is the process by which “even the individual object which man confronts directly, either as producer or consumer” becomes “distorted in its objectivity by its commodity character,” *second nature* is the greater world this process produces.<sup>25</sup> Lukács writes: “This second nature is not dumb, sensuous and yet senseless like the first: it is a complex of senses—meanings—which has become rigid and strange, and which no longer awakens interiority; it is a charnel-house of long-dead interiorities.”<sup>26</sup> At once real and estranged, second nature is what surrounds us as artifice that has paradoxically become naturalized. In an early reading of Lukács, Adorno describes second nature as a “world of things created by man, yet lost to him,” a world that “encounters us as *ciphers*.”<sup>27</sup> Adorno’s reading introduces what he calls a “natural-historical” dimension into the concept of second nature. Adorno argues that the ciphers of second nature present the “petrifying” of history into nature as well as the “petrified life of nature as a mere product of historical development.”<sup>28</sup> The problem that Lukács unfolds, Adorno writes, is “how it is possible to know and to interpret this alienated, reified, dead world”—how, that is, to confront these “ciphers” in order to discern their *natural–historical* content rather than their estranged unknowability.



In his *Arcades Project*, Benjamin provides one answer, turning to the relics of nineteenth-century consumer capitalism as “fossils” preserved in the decaying arcades of modern Paris. An image of the uncanny times and materials of second nature is apprehensible in the arcades’ petrifying commodities and their process of obsolescing, Benjamin claims. He writes:

On the walls of these caverns, their immemorial flora, the commodity, luxuriates and enters, like cancerous tissue, into the most irregular combinations. A world of secret affinities: palm tree and feather duster, hair dryer and Venus de Milo, prosthesis and letter-writing manual come together here as after a long separation.<sup>29</sup>

Though their form bears witness to their prior life, these obsolescing materials have come unfastened from the productive circuits of capitalism, while remaining irreducible to the cyclical temporalities of biotic life. Instead, they take on strange new configurations, a wanton tangle of “organic world and inorganic world” as the cast-off “commodity intermingles and interbreeds.”<sup>30</sup> Through these uncanny forms emerge a sense of second nature defined *not only* as the reified world of commodity production but as the material recombinations that emerge in its wake. Indeed, if their cast-off condition points to capitalism’s ongoing forms of creative destruction—the “charnel-house” of Lukács’ description—this obsolescing also reveals the *nondestruction*, the estranged persistence, that accompanies it. Carrying forward into an extended future time-frame in their slow decomposition, these materials remain figures of discontinuity rather than progressive succession. In so doing they illuminate the uneven and expanded temporalities of second nature as generated through—but not wholly *controlled by*—the transformative energies of capitalism.

For these Frankfurt School philosophers, second nature is a way of naming the ongoing and naturalized “catastrophe” of capitalist modernity.<sup>31</sup> In their natural–historical dialectic of progress and ruin made apprehensible in the ciphers of decaying commodities, these theorists offer a prefiguration of the ecological dimensions of second nature that becomes increasingly obvious by the later twentieth century. From tires, refrigerators, air conditioners, and synthetic fabrics like nylon, to PBDE-impregnated seat cushions, mattresses, and car seats, to aluminum cans

and other metals, a host of commodified materials present complex environmental challenges in their toxic, non-biodegradable obsolescing.<sup>32</sup> Plastic is perhaps the best-known example of a commodity material whose postconsumer persistence creates a wide variety of disturbing ecosystemic effects. In *The World Without Us*, Alan Weisman quotes the marine scientist Tony Ardrady discussing the unknowable duration of plastic after it is disposed: “Except for a small amount that’s been incinerated, . . . every bit of plastic manufactured in the world for the past 50 years or so remains. It’s somewhere in the environment.”<sup>33</sup> Cast-off plastic has a particularly outsized impact on the world’s oceans, collecting in great garbage patches and being pulverized into microplastics, which are in turn ingested by various forms of marine life.<sup>34</sup> Plastic in landfills also creates an extended risk of chemical contamination of groundwater, soil, and larger ecosystems.<sup>35</sup> The material effects of obsolescing materials present one example of what geographer Jason Moore calls “negative-value”—the undesirable counterpart to the generation of surplus-value—proliferating in the contemporary “capitalist world-ecology.”<sup>36</sup>

One of the key forms of obsolescing materials is e-waste, which is the fastest-growing global waste stream, according to the UN.<sup>37</sup> E-waste—computer monitors, laptops, cell phones, printers, scanners, tablets, TVs, electronic toys, and other gadgets—mostly ends up in landfills, as with other forms of postconsumer materials.<sup>38</sup> E-waste contains various hazardous materials, from heavy metals such as lead, mercury, and cadmium to brominated flame retardants, which can cause damage to waterways, soil, humans, and various other organisms. However, e-waste, more than any other form of non-biodegradable detritus, also points to another dimension associated with obsolescing: *recycling* and *salvage*. For many U.S. consumers, the concept of recycling is a powerfully positive one, even operating as what psychologists Jesse Catlin and Yitong Wang call a “‘get out of jail free card,’ which may . . . signal to consumers that it is acceptable to consume as long as they recycle the end product.”<sup>39</sup> A significant portion of these materials is taken by consumers to recycling centers each year in the hopes that these discarded machines will be reused in environmentally sustainable ways.<sup>40</sup> Yet the actual processes of e-waste recycling bear little resemblance to the fantasy of a waste-free end result to consumption. Jennifer Gabrys details the extended afterlife of e-waste in her fascinating study, *Digital Rubbish: A Natural History of Electronics*:

Typically, electronics are first collected by recyclers in North America or Europe, who salvage high-grade machines for resale and extract valuable metal from devices for scrap or who alternately bundle defunct machines in shipping containers. In either case, at some stage down the line of processing, the electronics are usually sent to developing countries for scrap and salvaging of components.<sup>41</sup>

The salvage process extends the productive circuit of capital further, as value is appropriated from former commodities that now operate as raw material for extraction. A complex global infrastructure, including warehouses and other facilities, mechanical shredding devices and smelters, shipping containers and other transportation units, and myriad informal processing and trading operations, has been developed to facilitate this industry built on obsolescing goods.

This process retraces, in reverse, the global itinerary of commodity production and circulation, sending e-waste back to countries such as China, India, Nigeria, and Ghana (sometimes using the same shipping containers both ways).<sup>42</sup> Plastic that is made in Shenzhen for companies like Foxconn—producer of electronics products for companies like Apple and Hewlett-Packard—finds its way into mountains of e-waste in the informal workshops of Guiyu. Discarded tablets, laptops, and cell phones containing heavy metals mined in Africa end up in cities like Accra and Lagos, where people scavenge in dumps for material to sell to local scrap markets. In these and other cities, informal workers, including children, labor in toxic conditions to dismantle e-waste and extract metals. According to a recent Indian chamber of commerce report, Indian informal e-waste workers generally cannot work after the ages of thirty-five to forty because of their poor health.<sup>43</sup> In turn, the local waters, air, soil of these areas are severely contaminated, reflecting the conditions of what critical geographer Mike Davis calls “slum ecology.”<sup>44</sup> The expanded temporality of obsolescing involves such key dimensions of global political ecology—the growing proportions of the global precariat and the harmful conditions in which they live and eke out a subsistence.<sup>45</sup> In many ways, to highlight obsolescing is thus to return to a familiar story—the production of surplus-value through the exploitation of labor-power—and to see its ramifications extend into new phases and intensifying, if uneven, material effects on humans and ecosystems.

## Coda: Wish Images

Yet if obsolescing unveils the workings of second nature as the propulsive progress of capitalist production and the alienated and petrifying forms it leaves in its wake, obsolescing materials also operate, according to Benjamin's *Arcades Project*, as collective "wish images."<sup>46</sup> Benjamin argues that wish images are "images in the collective consciousness in which the new is permeated with the old."<sup>47</sup> Obsolescing objects, with their strange sense of nonsynchrony, come to embody utopian longings for another mode of communal existence, as in Hillman's description of the slow, intimate connectivity that the phone booth and the phone cord's tactile "whorl" evokes. If, as the French group the Invisible Committee claims, human and nonhuman life in the present is "*held captive* by the general organization of the commodity system," we might see the wish image of obsolescing as a figuration of collective *release* from this captivity.<sup>48</sup> Left alone, obsolescing materials evoke a sense of liberation from what Benjamin calls the "drudgery of being useful," but perhaps more significantly, from the tyranny of value creation for profit—a vision that extends to subjects and objects alike.<sup>49</sup> In Benjamin's description, these ciphers in their natural–historical entangling evoke "elements of primal history," including dimensions of "classless society"—a utopian glimmer drawn from decaying things.<sup>50</sup>

Such a wish image might bring to mind truly posthuman imaginings, such as Weisman's vision of the planet's life after humans or post-apocalyptic narratives like *Earth Abides*—a world in which production has come to a cataclysmic standstill. Or it might evoke a return to peasant-based agriculture on a global scale, as ecofeminists such as Mariarosa Dalla Costa propose.<sup>51</sup> But obsolescing might also express desires that are more immediately attuned to alternative socioecological speeds and times. Above all, obsolescing evokes *senescence*: the processes of aging, slowing down, not keeping up. As a wish image, this offers a different orientation toward ecological being-in-relation, one that honors slowness and deceleration. To turn our attention to this wish image is perhaps to reorient our thinking toward finitude—ecological and economic—and to denaturalize our ethos of speed and novelty. As Hillman ruefully asks: "Why did we live so fast[?]"

## Notes

1. Brenda Hillman, "Phone Booth," in *Practical Water* (Middletown, Conn.: Wesleyan University Press, 2009), 17.
2. Walter Benjamin, "On Some Motifs in Baudelaire," in *Walter Benjamin: Selected Writings, Volume 4: 1938–1940*, ed. Howard Eiland and Michael Jennings (Cambridge, Mass.: Harvard University Press, 2003), 316.
3. Karl Marx, *Capital*, vol. 1, trans Ben Fowkes (London: Penguin, 1990), 163–64.
4. *Ibid.*, 165.
5. Marx writes, "The mystical character of the commodity does not therefore arise from its use-value." *Ibid.*, 164.
6. Joseph Schumpeter, *Capitalism, Socialism, and Democracy* (London: Routledge, 1994), 82–83.
7. Arjun Appadurai, *Modernity at Large: Cultural Dimensions of Globalization* (Minneapolis: University of Minnesota Press, 1996), 82.
8. Hillman, "Phone Booth," 17.
9. Michael Thompson, *Rubbish Theory: The Creation and Destruction of Value* (Oxford: Oxford University Press, 1979), 2.
10. Theodor Adorno, *Minima Moralia: Reflections on a Damaged Life* (London: Verso, 2005), 221.
11. Vance Packard, *The Waste Makers* (New York: David McKay, 1960), 4–5.
12. *Ibid.*
13. Karl Marx and Friedrich Engels, *Manifesto of the Communist Party*, *Marxists.org*, <https://www.marxists.org/archive/marx/works/1848/communist-manifesto/>.
14. For a detailed discussion of the dynamics of overcapacity and overproduction in postwar economies, see Robert Brenner, *The Dynamics of Global Turbulence* (New York: Verso, 2006), 34–40.
15. Lorine Niedecker, *Collected Works* (Berkeley: University of California Press, 2006), 157, 119.
16. Cited in Bill Brown, "The Obsolescence of the Human," in *Cultures of Obsolescence: History, Materiality, and the Digital Age*, ed. Babette Tischleder and Sarah Wasserman (New York: Palgrave Macmillan, 2015), 22.
17. Giles Slade, *Made to Break: Technology and Obsolescence in America* (Cambridge, Mass.: Harvard University Press, 2006), 153.
18. *Ibid.*, 187.
19. *Ibid.*, 198.
20. As Daniel Abramson writes: "Obsolescence connotes a terminal process, an emptying of usefulness and value in competition with something new and better. But the suddenness and externality of obsolescence leaves the obsolete object intact, as opposed to slow, intrinsic, physical decay. The problem then

becomes what to do with the superceded yet more or less whole artifact.” “Boston’s West End: Urban Obsolescence in Mid-Twentieth-Century America,” in *Governing by Design: Architecture, Economy, and Politics in the Twentieth Century*, ed. the Aggregate Collective (Pittsburgh: University of Pittsburgh Press, 2012), 56.

21. Thompson, *Rubbish Theory*, 94.

22. Packard, *Waste Makers*, 209.

23. Mary Douglas, *Purity and Danger: An Analysis of the Concepts of Pollution and Taboo* (London: Routledge, 1984), 35.

24. Theodor Adorno, “The Idea of Natural-History,” in Robert Hullot-Kentor, *Things beyond Resemblance: Collected Essays on Theodor Adorno*, trans. Robert Hullot-Kentor (New York: Columbia Press, 2006), 261.

25. Georg Lukács, “Reification and the Consciousness of the Proletariat,” in *History and Class Consciousness: Studies in Marxist Dialectics*, trans. Rodney Livingstone (Cambridge, Mass.: MIT Press, 1972), 93.

26. Georg Lukács, *The Theory of the Novel*, trans. Anna Bostock (Cambridge, Mass.: MIT Press, 1971), 64.

27. Adorno, “Idea,” 260–61.

28. *Ibid.*, 261.

29. Walter Benjamin, *The Arcades Project*, trans. Howard Eiland and Kevin McLaughlin (Cambridge, Mass.: Belknap Press of Harvard University Press, 1999), 827, 874.

30. *Ibid.*, 827.

31. *Ibid.*, 473.

32. See Alan Weisman, *The World Without Us* (New York: Thomas Dunn Books, 2007) 131, 205.

33. *Ibid.*, 126.

34. *Ibid.*, 123.

35. Jessica Knoblauch, “Plastic Not-So-Fantastic: How the Versatile Material Harms the Environment and Human Health,” *Scientific American*, July 2, 2009, <http://www.scientificamerican.com/article/plastic-not-so-fantastic/>.

36. Jason Moore, *Capitalism in the Web of Life* (London: Verso, 2015), 274.

37. John Vidal, “Toxic ‘E-waste’ Dumped in Poor Nations, says United Nations,” *Guardian*, December 14, 2013, <http://www.theguardian.com/global-development/2013/dec/14/toxic-ewaste-illegal-dumping-developing-countries>.

38. An unknown amount of e-waste is also found in stockpiles. See Ian Urbina, “Unwanted Electronic Gear Rising in Toxic Piles,” *New York Times*, March 18, 2013, [http://www.nytimes.com/2013/03/19/us/disposal-of-older-monitors-leaves-a-hazardous-trail.html?pagewanted=all&\\_r=2&](http://www.nytimes.com/2013/03/19/us/disposal-of-older-monitors-leaves-a-hazardous-trail.html?pagewanted=all&_r=2&).

39. Jesse Catlin and Yitong Wang, “Recycling Gone Bad: When the Option to Recycle Increases Resource Consumption,” *Journal of Consumer Psychology* 23, no. 1 (January 2013): 122–27.

40. According to the nonprofit group Electronics Take-Back Initiative, citing figures from the EPA, the United States had a 27 percent recycling rate of overall e-waste in 2010. See Electronics Take-Back Initiative, "Facts and Figures on E-Waste and Recycling," June 25, 2014, [http://www.electronicstakeback.com/wp-content/uploads/Facts\\_and\\_Figures\\_on\\_EWaste\\_and\\_Recycling.pdf](http://www.electronicstakeback.com/wp-content/uploads/Facts_and_Figures_on_EWaste_and_Recycling.pdf).
41. Jennifer Gabrys, *Digital Rubbish: A Natural History of Electronics* (Ann Arbor: University of Michigan Press, 2011), 91.
42. Heather Rogers, *Gone Tomorrow: The Hidden Life of Garbage* (New York: New Press, 2005), 201.
43. Matt Wade, "Inside Delhi's Gadget Graveyard Where the West's E-waste Ends Up," *Sydney Morning Herald*, January 9, 2016, <http://www.smh.com.au/world/inside-delhis-gadget-graveyard-where-the-wests-ewaste-ends-up-20160107-gm1h7z.html>.
44. Mike Davis, *Planet of Slums* (London: Verso, 2007), 121.
45. A key source of e-waste labor in the United States is prisoners in federal penitentiaries. See Leslie Kaufman, "Toxic Metals Tied to Work in Prisons," *New York Times*, October 26, 2010, <http://www.nytimes.com/2010/10/27/science/earth/27waste.html>.
46. Benjamin, *Arcades Project*, 4.
47. *Ibid.*
48. The Invisible Committee, *To Our Friends*, trans. Robert Hurley (Los Angeles: Semiotext(e), 2015), 208.
49. Benjamin, *Arcades Project*, 19.
50. *Ibid.*, 4.
51. Mariarosa Dalla Costa, "Food Sovereignty, Peasants, and Women," *Commoner*, June 21, 2008, <http://www.commoner.org.uk/?p=42>.